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The 1990 Roe Herring Charter Vessel Monitoring and Sampling Program

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ABSTRACT

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Sixteen charter vessels made 472 sample sets on the British Columbia coast in order for fishery managers to assess the stock abundance, recruitment and state of sexual maturity of the Pacific herring (Clupea harengus pallasi). These data were used to determine the location, timing and estimated duration of the 1990 commercial roe herring fishery openings.

In addition, 96,671 herring were tagged. The tag recovery data provided information on inshore distribution and migration patterns as well as supplemental information for stock identification. The information was used to facilitate management planning.

Laboratory samples were also retained after each sample set for Fisheries Biological Science Branch scientists as part of the data base for the computer modelling system used to estimate the escapement and predict the available surplus for the 1990/1991 Pacific herring fishery. Field data, including hydroacoustic stock estimates and onboard field analysis data are contained in this report.

Key words: Pacific herring (Clupea harengus pallasi), charter vessels, stock abundance, sexual maturity, roe yield, standard length.

RÉSUMÉ

Seize bateaux affrétés ont recueilli 472 séries d'échantillons sur la côte de la Colombie-Britannique pour permettre aux gestionnaires des pêches d'évaluer l'abondance, le recrutement et la maturité sexuelle des stocks de hareng du Pacifique (Clupea harengus pallasi). Ces données ont été utilisées pour déterminer les secteurs de pêche commerciale du hareng rogué pour 1990 et leur date d'ouverture, et estimer la durée de cette pêche dans les différents secteurs.

Par ailleurs, 96671 harengs ont été marqués. Les données de relance ont fourni des informations sur la distribution et les routes migratoires du hareng sur les côtes de même que des informations supplémentaires pour l'identification des stocks. Ces informations ont facilité la planification de la gestion.

Des échantillons de laboratoire destinés aux scientifiques de la Direction des sciences biologiques de Pêches et Océans ont également été recueillis après chaque série d'échantillonnage pour enrichir la base de données du système de modélisation informatisée utilisée pour estimer l'échappée et prédire les excédents de hareng qui seront disponibles pour la pêche au hareng du Pacifique de 1990-1991. Des données de terrain, dont des estimés hydroacoustiques des stocks et des données d'analyses effectuées à bord, sont présentées dans ce rapport.

Mots-clés:hareng du Pacifique (Clupea harengus pallasi), bateaux affrétés, importance des stocks, maturité sexuelle, production d'oeufs, longueur standard.

INTRODUCTION

In 1990, sixteen herring seiners were chartered for the roe herring test fishing program to provide pre & post-fishery herring stock information for fishery managers, Industry and research scientists.

The charter program objectives were as follows:

1. Pre-fishery Information (13 vessels)

a) to estimate the overall herring biomass in each fishing location and to identify a fishable stock to meet the Fixed Quota requirement,

b) to tag herring to provide more information on stock movement within licence areas and to better delineate stock groupings,

c) to determine roe yields,

d) to determine if the available herring size (length and weight) was suitable for a herring fishery,

e) to determine roe quality, ie. incidence of abnormal roe,

f) to provide updated information on the rate of maturity based on roe yield, abundance and behaviour, allowing the fishing fleet to remain in protected anchorages.

g) to ensure "on the grounds" input from Industry via the charter vessel masters,

h) to use charter vessels as training platforms for Department of Fisheries and Oceans (DFO) field staff.

i) to obtain biological samples for the Biological Science Branch (BSB) from as many herring spawning stocks as possible. The resulting information is used to forecast the stock strength and potential catch for the following year.

2. Post-fishery Information (3 Vessels)

a) to provide information on Potential fishing opportunities by identifying overlooked fishable stocks,

b) to provide post fishery abundance and distribution information,

c) to provide spawn assessment information to be used for forcasting the stock status and available surplus for 1991.

In order to fulfil the above objectives, it is mandatory that the fishing master be an experienced and successful herring fisherman who is ready and able to pass on his experience to the DFO staff, and who is respected by seine and gillnet fishermen participating in the commercial fishery.

This report contains the results of the 1990 roe herring charter program.

HISTORICAL REVIEW OF THE ROE HERRING CHARTER PROGRAM

Successful management of roe herring fisheries depends on the manager getting timely and accurate information on stock movement, abundance and sexual maturity.

Before 1980, seine vessels were only chartered for the period preceding fishery openings and could participate in the commercial fishery. This meant that just when the fishery managers most urgently needed the information on roe yield and abundance, they lost one of their key sources of data. This may have resulted in lost opportunities and lost revenue to Industry.

These vessels were not chartered for the entire fishing season strictly because the cost of buying an experienced and successful fisherman out of the roe herring fishery was prohibitive, especially during the late 1970 boom years. An estimated cost of chartering 11 seine vessels was in excess of $1,000,000. The dramatic increase in value of roe herring, combined with the Industry requirement of a minimum roe yield of 10%, increased the need for timely and accurate information on stock movement, abundance and sexual maturity.

During the "Bonanza Year" of 1979, million dollar seine sets were made and cash buyers were paying up to $5,000/ton on the fishing grounds. This activity resulted in additional pressure on the resource and fishery managers, thus further confirming that test vessels were required throughout the roe fishery season.

The present chartering system is the result of consultation with fisheries staff and representatives from the Industry. It was decided that Industry would get involved in providing in-season management information through the charter vessel masters. Seiners with experienced skippers would be chartered to conduct test fishing throughout the fishing season under authority of the Fisheries Act. The charter seiners would carry out the test fishing operation and would be given permission to catch a specified quantity of roe herring in tons/day for the duration of the charter. As part of the Charter Agreement, the charter seiner would not participate in the roe herring fishery during the year of the charter.

In this way, the charter program was paid out of the herring resource, Industry was involved during the fishing season in developing the fisheries through the charter vessel masters, and a number of seiners were bought out of the open fishery thereby reducing fleet size.

This report summarizes the seine set data, roe yield information and length frequency distribution data collected from the 13 pre-fishery charter seiners. The information from the three post-fishery charters is reported in the annual Fishery review Industry report. In order to simplify data tabulation, interpretation and comparison with previous years, all tonnage is given in short tons (907.18 kg), the distances are shown in nautical miles (1.85 km) and herring length is given in centimetres. The present report is one of a series of publications by the DFO aimed at providing the annual summary of the roe herring monitoring and sampling program.

METHODS AND MATERIALS

In 1990, 16 herring seine vessels were chartered for the roe herring fishery on the B.C. coast.

Thirteen of the sixteen charter vessels were used to assess the pre-fishery herring stocks in each area by echo sounding for biomass estimates and by seining for biological samples to determine recruitment and roe yield. The normal procedure was to survey the fishing grounds hydroacoustically and obtain seine samples from a cross-section of the herring schools in each location prior to spawning. During 1990, twelve of the thirteen charter vessels, as part of their charter agreement, provided 5,000 to 10,000 spaghetti anchor tags for a total of 105,000 tags. The tags were applied on herring in all six licence areas (Table 8).

Three vessels were used to provide post-fishery information on potential fishing opportunities, abundance and distribution as well as spawning distribution and intensity observations.

Invitation to tender documents were mailed to all licenced roe herring seiners, and 16 charter vessels were selected (Table 1). The selection was based on a combination of low bids (tons of roe herring per day) and a point rating system which takes into account the experience of the vessel master and the condition of the vessel and equipment. The Thirteen pre-fishery vessels were chartered for a minimum of 26 days with provisions made in the Tendering Agreement for extensions of up to 5 days, if required. Bids from successful vessels ranged between 4.53 tons/day and 5.50 tons/day for a total tonnage requirement of 1701.44 (Table 1). The overall average bid for the thirteen charter vessels was 131 tons; the bid ratio was 1.68 times the average seine quota (Table 4). These vessels are not allowed by contract to participate in the open fishery during the year of the charter.

The three post-fishery vessels were chartered for 25 days in the Queen Charlotte Islands and 20 days in the Central Coast and West Coast Vancouver Island areas; the bids were 3.10,2.25 and 2.50 tons/day, respectively. The bids for the three post-fishery charters were lower because they are allowed as part of their contract to participate in the open fishery.

The actual payment was 2066.82 tons including extensions (Tables 1 & 3). Eleven pre-fishery charter vessels were given extensions during 1990; no extensions exceeded five days. The actual tonnage caught for payment was 2335.35 tons for an excess catch of 268.53 tons. The excess catch at 14.3% was above the 12.5 percent 1980-1990 mean excess per vessel (Table 5). All herring caught in excess of the tendered amount were sold at the same rate paid to the respective charter vessel and the subsequent revenue deposited with the Receiver General of Canada.

Pre-fishery Charters

The charter timing was set to ensure that the charter vessel was available prior to and during the major spawnings in each area (Table 3). The 13 pre-fishery vessels were assigned to the five herring management areas (Fig. 1) as follows:

Management Areas

Queen Charlotte Islands	- 3.0 vessels
Prince Rupert	- 1.5 vessels[1]
Central Coast	- 2.0 vessels
Area 8-12	- 0.5 vessel [1]
Strait of Georgia	- 2.0 vessels
West Coast Vancouver Island	- 4.0 vessels

The charter vessels were assigned to specific sampling locations within each management area and were given general directions, by the fishery manager on where samples were required in each district. Each set location was recorded by Statistical Area (Fig. 2) and herring section (Figs. 3-8; Table 6). The onboard direction on sampling procedures was given by the DFO fishery officer, technician or biologist assigned to the vessel.

Specific sampling instructions, similar to those used in previous years, were placed onboard each vessel (Appendix Table 1).

Onboard Sampling Procedure

Seine sample sets were made on all large bodies of herring, and samples of approximately 90 kg (200 lb) were brought aboard from the set using a small meshed dipnet or brailer. A Wheelhouse and Sample Log sheet, which doubles as a length measurement data sheet, was completed after every set (Appendix Figs.1a & 1b). Another random sample of approximately 18 kg (40 lb) was taken from the same set for further laboratory analysis at BSB. Samples were also retained for special Biological Science Branch (BSB) research studies in selected locations along the coast.

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[1] One charter vessel was used for both the Prince Rupert and Southern Central Coast and Johnstone Strait / Mainland Inlet areas (13 days duration in each area).

The onboard data sheets and sampling procedures are described below.

1. Onboard data records

i) Daily log

The daily log covers all activities of the charter vessel while assessing the herring stocks. This includes a summary of discussions with the vessel master on fish movement and behaviour patterns. The daily logs from the previous year are also placed aboard the charter vessels as a reference for past fish behaviour and distribution patters in a particular location.

ii) Wheelhouse and Sample Log

This data sheet is completed after every set, including water hauls, and provides a record of the seine set including biomass estimates and roe yield information (Appendix Figs. 1a and 1b). Information from this data sheet is reported to the Fishery Manager by radio telephone.

iii) Onboard sampling

a) Herring measurement

Standard length measurements (Appendix Fig. 2) obtained from a random sample of 100 herring are recorded directly on a waterproof paper Wheelhouse and Sample Log sheet (appendix Fig. 1a). The herring below a "cutoff" length (predetermined from past year's age/length data) are judged to be new recruits (first time spawners) (Appendix Table 2). These small herring are less desirable for roe fisheries due to their small gonads and therefore, lower roe yield.

In addition, changes in the percentage of herring below the "cutoff" length could indicate a change in stock composition and may be important in setting fishery boundaries.

2. Roe yield

During the 1990 roe herring fishery, two methods of determining roe yield were used:

a) Volumetric method - this is the commonly used method and consists of filling a standard 18 litre (4 imp. gal.) bucket level to the top with herring, stripping the ripe female roe into a calibrated volumetric cylinder and recording the percentage from the scale (Appendix Table 3).

b) Weight method - this is used to periodically verify the accuracy of the volumetric method - the actual weight of the herring sample and roe is used to calculate the roe yield (Appendix Table 4).

In this report, the roe yield information tables give volume and adjusted volume of all roe test results. The adjusted roe yield values assume a 50:50 male/female sex ratio and the formula used for this adjustment is shown in Appendix Table 6; generally, the herring population will have a 50:50 male/female sex ratio. However, this may not be true in all cases. For example males breaking off from the main school just prior to spawning could affect the overall sex ratio. Therefore, a 50:50 male/female sex ratio should be assumed with caution.

3) Laboratory samples

After each set, a biological sample containing a minimum of 100 herring is placed in a plastic bucket, sealed and either frozen or iced down for delivery to BSB laboratory for further analysis.

RESULTS

During the 1990 roe herring charter program, the 13 pre-fishery charter seiners made 472 seine sample sets for an average of 36 sets per vessel (Table 7). A total of 1114 roe tests were carried out onboard the charter vessels; samples from seine and gillnet fisheries are included when available. In addition, 349 samples were retained for the BSB laboratory (Table 7). 96,671 herring were tagged using spaghetti anchor tags in six management areas (Table 8).

Results from inshore seine sets made by the DFO vessel Walker Rock are also included.

The 1990 roe herring quota was reached in all licence areas and the seine/gillnet 55/45 percent catch split was met coastwide.

The roe yields reported by industry were compared with the charter seine set data and roe yield information indicating herring of optimum roe yield were harvested in each area. The seine roe quality in terms of size and/or grade I as reported by industry was very good with the exception of the Kitkatla seine caught herring due to small herring in the catch. The GN caught herring were reported to be generally very good, however, there were reports of less than desirable roe quality by some fishermen in the March 14-15 Strait of Georgia - Cape Lazo fishery. Egg ingestion causing roe sac distortion appeared to be the mayor problem. The gillnet roe quality in the Stuart Channel fishery was very good and of interest is the fact there was little or no spawning in the area at the time of the Fishery. It is felt that fishery openings if delayed too long will result in reduced roe yield and quality from partially spawned herring and/or egg sac distortion from full stomachs (maturing herring will feed on previous spawned eggs causing the full stomachs to distort the roe sac).

Hydroacoustic biomass estimates, roe yield information, sea surface water temperatures and length frequency distributions of herring from the roe herring charter seine set information are shown for each seine sample set in Tables 11-40.

Information from the post-fishery charters will be reported in the annual "Review of the British Columbia Herring Fishery and Spawn Abundance" report by D. Chalmers.

The sampling coverage was generally acceptable in 1990.

Table 1. Charter payment summary, 1990.

Tender	Vessel	Daily Rate (Tons)	Charter Duration (Days)	Total Payment Requirement (tons)
		Pre-fishery Charters		
1	Semidi	5.09	31(5)[1]	157.79
2	Karenora 2	4.60	27(1)[1]	124.20
3	Ocean Cloud	5.15	29(3)[1]	149.35
4	Venturous	5.00	26	130.00
5	Ocean Royal	5.30	31(5)[1]	164.30
6	Western Princess	5.50	26	143.00
7	Fisher Lassie 11	5.45	28(2)[1]	152.60
8	Royal Mariner	4.53	29(3)[1]	131.37
9	Vampy 1	4.60	30(4)[1]	138.00
10	Ante B	5.10	30(4)[1]	153.00
11	Westview No 1	5.09	29(3)[1]	147.61
12	Elling K	4.73	30(4)[1]	141.90
13	Pacific Quest	5.30	29(3)[1]	153.70
Pre-fishery bid requirement for 26 days (1701 tons)				
		Post-fishery Charters		
1	Christav	3.10	25	77.50
2	Kynoc	2.25	20	45.00
3	Pacific Discovery	2.50	23(3)[1]	57.50
		TOTAL Requirement		2066.82
		Catch		2335.35
		Excess		268.53

[1]Number in parenthesis indicates charter extension in days

Table 2 Payment catch location, 1990

Stat. Area	Location	Catch(Tons)
2W	Rennell Sound	336.39
2E	Skincuttle Inlet	313.70
5	Kitkatla	277.60
7	Berry Inlet	512.27[1]
23	Barkley Sd	895.39[2]
Total		2335.35

[1]Catch includes payment for the Strait of Georgia charter vessel "Vampy 1".

[2]Catch includes payment for the Strait of Georgia charter vessel "Royal Mariner".

Table 3 Pre-fishery charter vessels by location and time period, 1990.

Vessel	Fishing Master	Location	Charter timing	Charter duration (days)
1. Semidi	T. Pallant	QCI[1]	Mar.11-Apr. 10	31[5]
2. Karenora 2	D. Smith	QCI	Feb.28-Mar.26	27[5]
3. Ocean Cloud	B. Bird	QCI	Mar. 8-Apr. 5	29[5]
4. Venturous	N. Jensen	Prince Rupert	Mar. 14-Apr.8	26
5. Ocean Royal	N. Brajcich	SCC & JS[2] Prince Rupert	Mar. 3-Mar.16 Mar. 20-Apr. 6	13 18
6. Western Princess	J. Haugan	Central Coast	Mar. 1-Mar.26	26
7. Fisher Lassie 11	V. Wilson	Central Coast	Mar. 3-Mar.30	28[5]
8. Royal Mariner	M. Farac	SG/JS[3]	Feb. 20-Mar. 20	29[5]
9. Vampy 1	B. Fergusson	SG/JS	Feb. 23-Mar. 24	30[5]
10. Ante B	J. Borevich	WCVI[4]	Feb. 20-Mar. 21	30[5]
11. Westview No. 1	M. Aleksich	WCVI	Feb. 26-Mar. 26	29[5]
12. Elling K	F. Leland	WCVI	Feb. 20-Mar. 21	30[5]
13. Pacific Quest	J. Polonio	WCVI	Feb. 23-Mar. 23	29[5]

[1]Queen Charlotte Islands.

[2]Southern Central Coast & Johnstone Strait/Mainland Inlet (areas 8-12)

[3]Strait of Georgia/Johnstone Strait.

[4]West Coast Vancouver Island.

[5] Includes extensions.

Table 4. Comparison between the seine quota and pre-fishery charter payment requirement, 1980-1990 (values expressed in short tons, except where indicated).

Year	Roe Herring Quota	Seine Quota (Ave)[7] [no vessels]	Charter Bid (Ave) [no vessels]	Payment	Catch	Bid & Seine Quota Comparison Ratio[1]
1980	35,000	19,250 (79) [244]	1,086 (136) [8][2]	1,116	1,187	$\frac{136}{79} = 1.72$
1981*	30,000	16,500 (69) [240]	1,761 (147) [12][3]	1,761	2,107	$\frac{147}{69} = 2.13$
1982	35,000	19,250 (81) [239]	1,941 (149)[4] [13][3]	1,989	2,138	$\frac{149}{81} = 1.84$
1983	30,900	16,995 (71) [240]	1,490 (124) [12+2][5,6]	1,555/ 1,679[6]	1,886	$\frac{124}{71} = 1.75$
1984	34,502	18,976 (79) [240]	1,445 (120) [12][5]	1,511	1,628	$\frac{120}{79} = 1.52$
1985	20,723	11,398 (47) [241]	1,026 (93) [11][5]	1,033	1,212	$\frac{93}{47} = 1.98$
1986	13,666	7,516 (31) [241]	799 (73) [11][5]	871	1,050	$\frac{72}{31} = 2.32$
1987	30,449	16,747 (70) [240]	1,313 (109) [12][5]	1,376	1,550	$\frac{109}{70} = 1.56$
1988	28,486	15,667 (66) [239]	1,514 (116) [13]	1,589	1,782	$\frac{116}{66} = 1.76$
1989	37,169	20,443 (86) [239]	1,678 (129) [13]	1,746	1,932	$\frac{129}{86} = 1.50$
1990	33,846	18,615 (78)	1,701 (131) [13]	1,887	2,335[8]	$\frac{131}{78} = 1.68$

1 Ratio of the average charter bid and average seine quota by year.

2 1980 - 20-day charters except for 27-day charter in the Central Coast.

3 1981 & 1982 - 26 days South Coast
- 27 days North Coast

4 Includes special research charter in Barkley Sound.

5 1983-1990 - 26 days for all charters; except 30 days for the Area 24 charter, 1987.

6 Includes special fall 1982 charter in the North Coast.

7 Average projected catch per seine vessel.

8 180 tons included for the post-fishery vessels - total excess 269 tons

* 1981 - 1st year of area licencing.

Table 5 Excess charter payment catch, 1980 - 1990

Year	Charter Payment	Payment Information (tons) Catch	Excess (tons)	Excess (%)
1980	1,116	1,187	71	6.4
1981	1,761	2,107	346	19.6
1982	1,989	2,138	149	7.5
1983	1,679	1,886	207	12.3
1984	1,511	1,628	117	7.7
1985	1,033	1,212	179	17.3
1986	871	1,050	179	20.6
1987	1,376	1,550	174	12.6
1988	1,589	1,782	193	12.1
1989	1,746	1,932	186	10.7
1990	1,887	2,155[1]	269	14.3
Percent excess catch - Range				6.4 - 20.6
	- Mean			12.5

[1]For comparison purposes, the catch does not include 180 tons of payment for the three post - fishery charters (see Table 1 for the overall catch).

Table 6 Herring Sections in British Columbia

Stat. Area	Section No.	Name
QUEEN CHARLOTTE ISLANDS		
01	010	Unknown Area 1
	011	Other Area 1
	012	Naden Harbour
109	019	Offshore Area 1
02W	000	Unknown Area 2W
	001	Tasu Sound
	002	Port Louis
	003	Rennell sound
	004	Cartwright Sound
	005	Englefield Bay
	006	Louscoone Inlet
02E	020	Unknown Area 2
	021	Juan Perez Sound
	022	Skidegate Inlet
	024	Cumnshewa Inlet
	025	Skincuttle Inlet
102	029	Offshore Area 2E
PRINCE RUPERT DISTRICT		
3XY	031	Other Area 3
	033	Port Simpson
32	032	Portland Inlet
04	040	Unknown Area 4
	041	Area 4 West
	042	Area 4 North
	043	Area 3 South
104	049	Offshore Area 4
05	050	Unknown Area 5
	051	Other Area 5
	052	Kitkatla Inlet
	053	Principe Channel
105	059	Offshore Area 5
CENTRAL COAST		
06	060	Unknown Area 6
	061	Caamano Sound
	062	Gil Island
	063	Kitimat Arm
	064	Gardner Canal
	065	Princess Royal Ch.
	066	Surf Inlet
	067	Laredo Sound
106	069	Offshore Area 6
07	070	Unknown Area 7
	071	Area 7 West
	072	Powell Anchorage
	073	Bella Bella
	074	Tompson Bay
	075	Mcnaughton Group
	076	Kilditt Sound
	077	Milbanke Sound
	078	Don Peninsula
107	079	Offshore Area 7
CENTRAL COAST (cont)		
08	080	Unknown Area 8
	081	Area 8 West
	082	Dean Channel
	083	Bentinck Arms
	084	Burke Channel
	085	Kwakshua Channel
	086	Fitzhugh Sound
108	089	Offshore Area 8
09	090	Unknown Area 9
	091	Fish Egg Inlet
	092	Rivers Inlet Mouth
	093	Rivers Inlet Head
10	100	Unknown Area 10
	101	Area 10 West
	102	Takush Harbour
	103	Smith Inlet
110	109	Offshore Area 10
JOHNSTONE STRAIT		
11	110	Unknown Area 11
	111	Belize Inlet
	112	Seymour Inlet
12	120	Unknown Area 12
	121	Queen Charlotte St.
	122	Beaver Harbour
	123	West Cracroft Island
	124	Wells Passage
	125	Gilford Island
	126	Kingcove Inlet
	127	Knight Inlet
STRAIT OF GEORGIA		
13	130	Unknown Area 13
	131	Thurlow Islands
	132	Deepwater Bay
	133	Loughborough Inlet
	134	Bute Inlet
	135	Cape Mudge
	136	Reed Island
14	140	Unknown Area 14
	141	Other Area 14
	142	Baynes Sound
	143	Qualicum
15	150	Unknown Area 15
	151	Redonda Islands
	152	Powell River
16	160	Unknown Area 16
	161	Sabine Channel
	162	Hotham Sound
	163	Malispina Strait
	164	Jervis Inlet
	165	Sechelt Inlet
17	170	Unknown Area 17
STRAIT OF GEORGIA (cont)		
17	171	Other Area 17
	172	Nanoose Bay
	173	Yellow Point
18	180	Unknown Area 18
	181	Swanson Channel
	182	Plumper Sound
19	190	Unknown Area 19
	191	Saanich Inlet
	192	Cordova Bay
	193	Victoria Harbour
	200	Unknown Area 20
	201	Fort San Juan
	202	Sooke Harbour
21	210	Unknown Area 21
	211	Clo-oose
121	219	Offshore Area 21
22	220	Nitinat Lake
WEST COAST VANCOUVER ISLAND		
23	230	Unknown Area 23
	231	Trevor Channel
	232	West Barkley Sound
	233	Imperial Eagle Ch.
123	239	Offshore Area 23
24	240	Unknown Area 24
	241	Tofino Inlet
	242	Hesquiat Harbour
	243	Sydney Inlet
	244	Miller Channel
	245	Vargas Island
124	249	Offshore Area 25
25	250	Unknown Area 25
	251	Other Area 25
	252	Nootka Sound
	253	Esperanza Inlet
125	259	Offshore Area 25
26	260	Unknown Area 26
	261	Other Area 26
	262	Clannick Cove
	263	Checleset Bay
27	270	Unknown Area 27
	271	Other Area 27
	272	Brooks Bay
	273	Forward Inlet
	274	Holberg Inlet
28	280	Howe Sound
29	291	Other Area 29
	292	Sechelt
	293	Boundary Bay

Table 7 Number of seine sets, roe tests and biological samples by charter vessels, 1990

Location (Stat Area)	Charter Vessel	Seine Sets	Roe Tests	Biol. Samples
Q.C.I.[1] (2E&2W)	Semidi	18	47	10
Q.C.I. (2E&2W)	Karenora 11	28	55	19
Q.C.I. (2E&2W)	Ocean Cloud	48	176	42
Prince Rupert (3-5)	Venturous	40	119	33
Prince Rupert/ SCC & JS[2] (3-5;8-13)	Ocean Royal	44	102	38
Central Coast (6&7)	Western Princess	40	79	31
Central Coast (7&8)	Fisher Lassie 11	37	106	18
Strait of Georgia (13,14,15)	Royal Mariner	44	96	34
Strait of Georgia (14,15,17,18)	Vampy 1	48	110	39
W.C.I.V.[3] (23)	Ante B	49	103	28
W.C.V.I. (24)	Westview No.1	27	89	19
W.C.V.I. (23,24,25)	Elling K	30	85	19
W.C.V.I. (24,27)	Pacific Quest	19	47	19
Total		472	1114	349
Ave/Vessel		36	86	27
Range/Vessel		19-48	47-176	19-44

[1]Queen Charlotte Islands
[2]Southern Central Coast & Johnstone Strait Area
[3]West Coast Vancouver Island

Table 8 Tagging summary, 1990

Total# Location	#Tags Tags	#Tags Applied	#Tags Recovered	% Recovered
Queen Charlotte I.	15,000	12,370	390	3.15
Prince Rupert	10,000	9,982	260	2.60
Central Coast	20,000	19,957	361	1.81
Strait of Georgia	20,000	19,954	171	0.86
WCVI	40,000	34,408	203	0.59
Total	105,000	96,671	1385	1.43

Table 9 Seine roe herring openings and catch by licence area, 1990

Licence Area	Location (sub-area)	Date/Time (duration)	Quota (tons)	Hailed Catch (tons)
Queen Charlotte Is.(2W)	Port Louis (2-92 - 2-97)	Mar 18/1030-1719 (6 hr 49 min)	1102	1745
Queen Charlotte Is.(2E)	Louscoone Inlet (2-31[1] ,2-32,2-33[1])	Mar 26/0930-1347 (4 hr 17 min)	4000	5800
Prince Rupert	Kitkatla Inlet (5-4[1],5-5,5-8[1],5-9[1])	Apr 3/0932-1800 (8 hr 28 min)	1700	718
	Kitkatla Inlet (5-4[1],5-4[2],5-5,5-8[1],5-9[1])	Apr 4/0701/1814 (11hr 13 min)		988
				1706
Central Coast	Spiller Inlet (7-14[1])	Mar 19/1102-1600 (4 hr 58 min)	5300	3482
	Spiller Inlet (7-13[1],7-14[1])	Mar 24 (0902-0918) (0 hr 16 min)		1657
				5139
West Coast Vancouver Island	Barkley Sound (23-8[1],23-9,23-10[1])	Mar 11/1001-1500 (4 hr 59 min)	6513	3300
	Barkley Sound (23-8[1], 23-9, 23-10, 23-11)	Mar 12/1000-1452 (4 hr 52 min)		3994
				7294
Total Seine			18615	21684

[1]Portion of sub-area opened.
[2]Area opened 1415-1452 hrs.

Table 10 Gillnet roe herring openings and catch, 1990

Licence Area	Location (sub-area)	Date/Time (duration)	Quota (tons)	Hailed Catch (tons)
Queen charlotte Isl(2E)	Burnaby Isl (2-12[1],2-13,2-14[1],2-16[1])	Apr 8/0830-1740 (9 hr 10 min)	1000	1247
Prince Rupert	Big Bay (4-5[1],4-7,4-8,4-9[1])	Mar 28/0830-2100 (12 hr 30 min)	2137	2500
Central Coast	Kitasu Bay, Thompson Bay, Stryker Bay, Norman Morrison Bay (6-16[1],6-18,7-18)	Mar 28/1000-1800 (8 hr)	2918	1635
	Kitasu Bay, Thompson Bay/Boddy Pass, Norman Morrison Bay (6-16A,6-18,7-18,7-19)	Mar 29/0800-1530 (7.5 hr)		1507
				3142
Strait of Georgia	Cape Lazo,Lambert Ch (14-9,14-11,14-12, 14-13)	Mar 14-15/1600-0930 (17 hr 30 min)	7800	2255
	Lambert Ch,French Cr, Stuart Ch(14-1 to 14-5, 14-9,17-4,17-5,17-6[1], 17-7[1],17-10,17-16[1])	Mar 22-24 1130 Mar 22 - 0300 Mar 24 (63 hr 30 min)		6000
				8255
West Coast Vancouver I	Tofino (24-6[1],24-7[1])	Mar 21/1000-1700 (7 hr)	1376	2195
	Total Gillnet		15231	17339

[1]Portion of sub-area opened.

Fig. 1. Herring management areas (solid lines) and 1990 roe herring Licence Areas (broken lines).

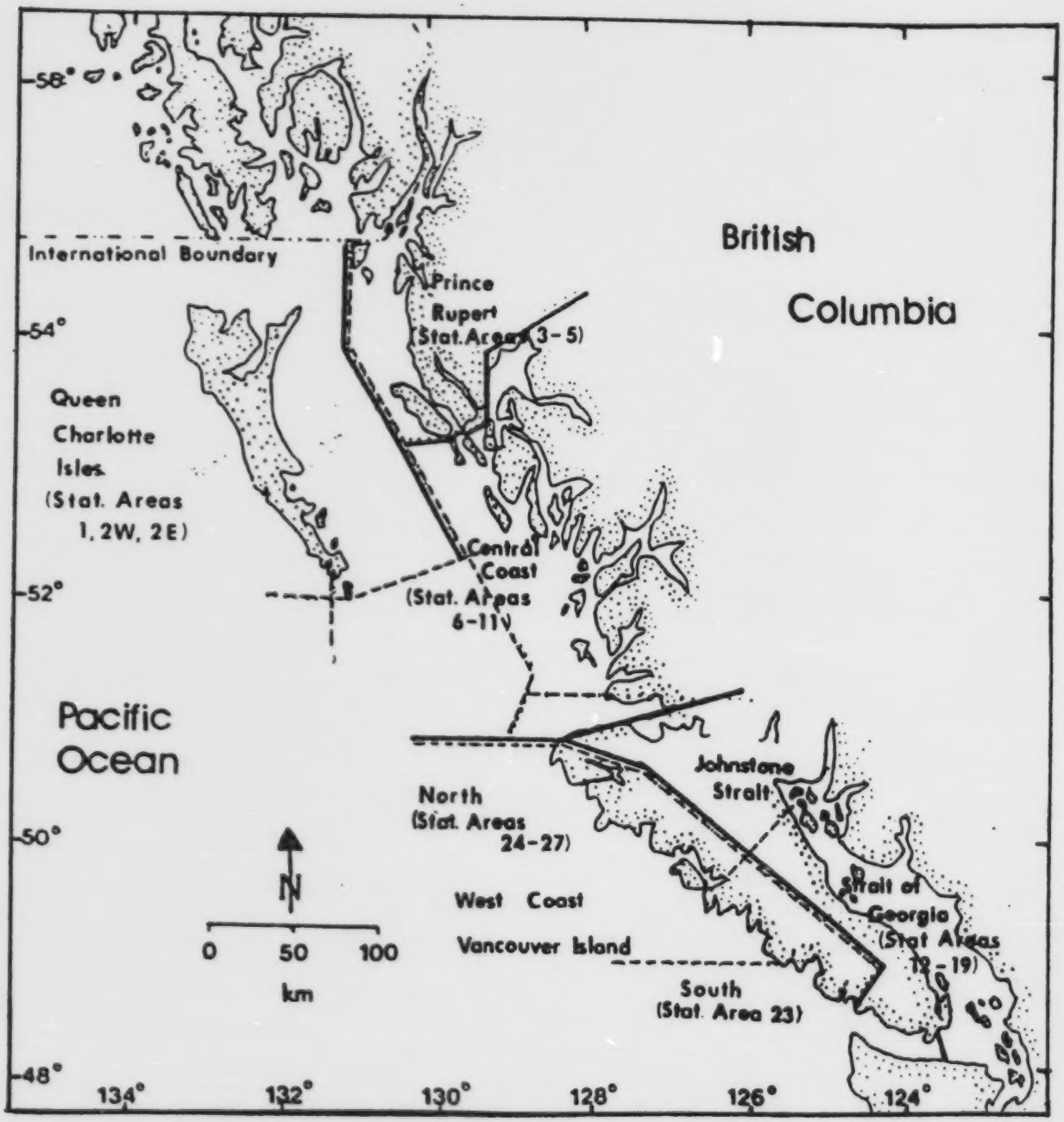

Fig. 2. Statistical Areas in British Columbia

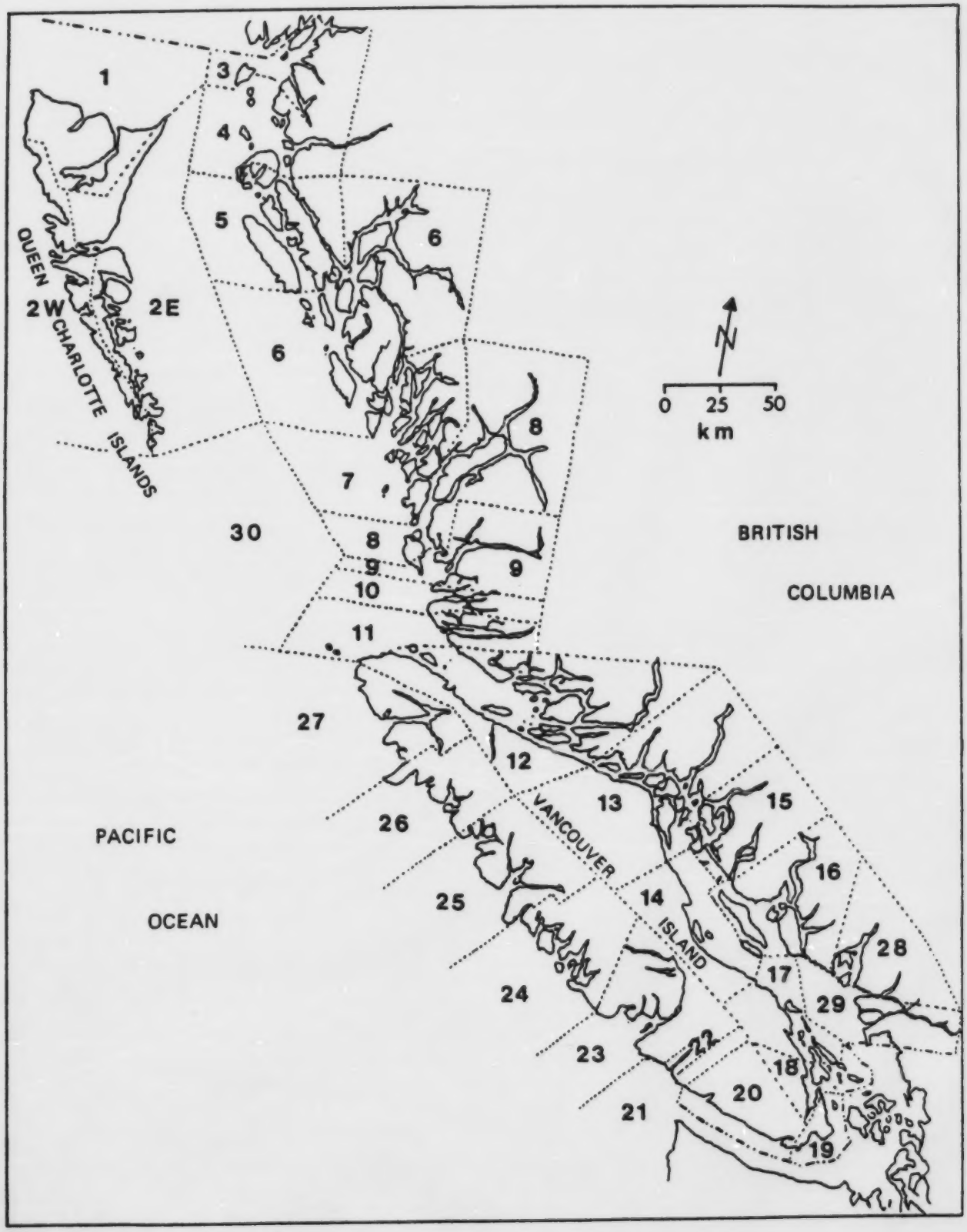

Fig. 3. Herring sections in Queen Charlotte Islands.

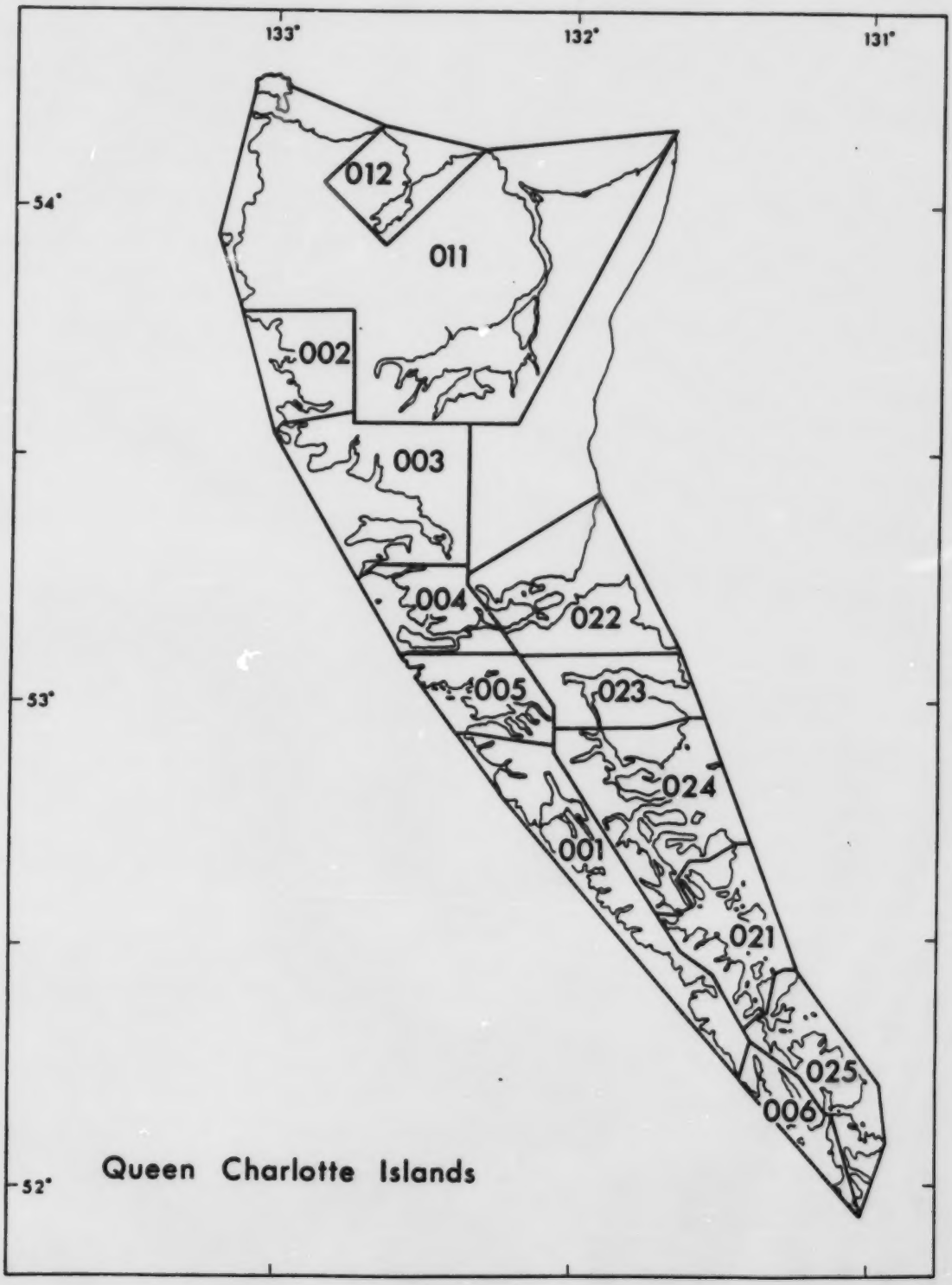

Fig. 4. Herring sections in Prince Rupert District.

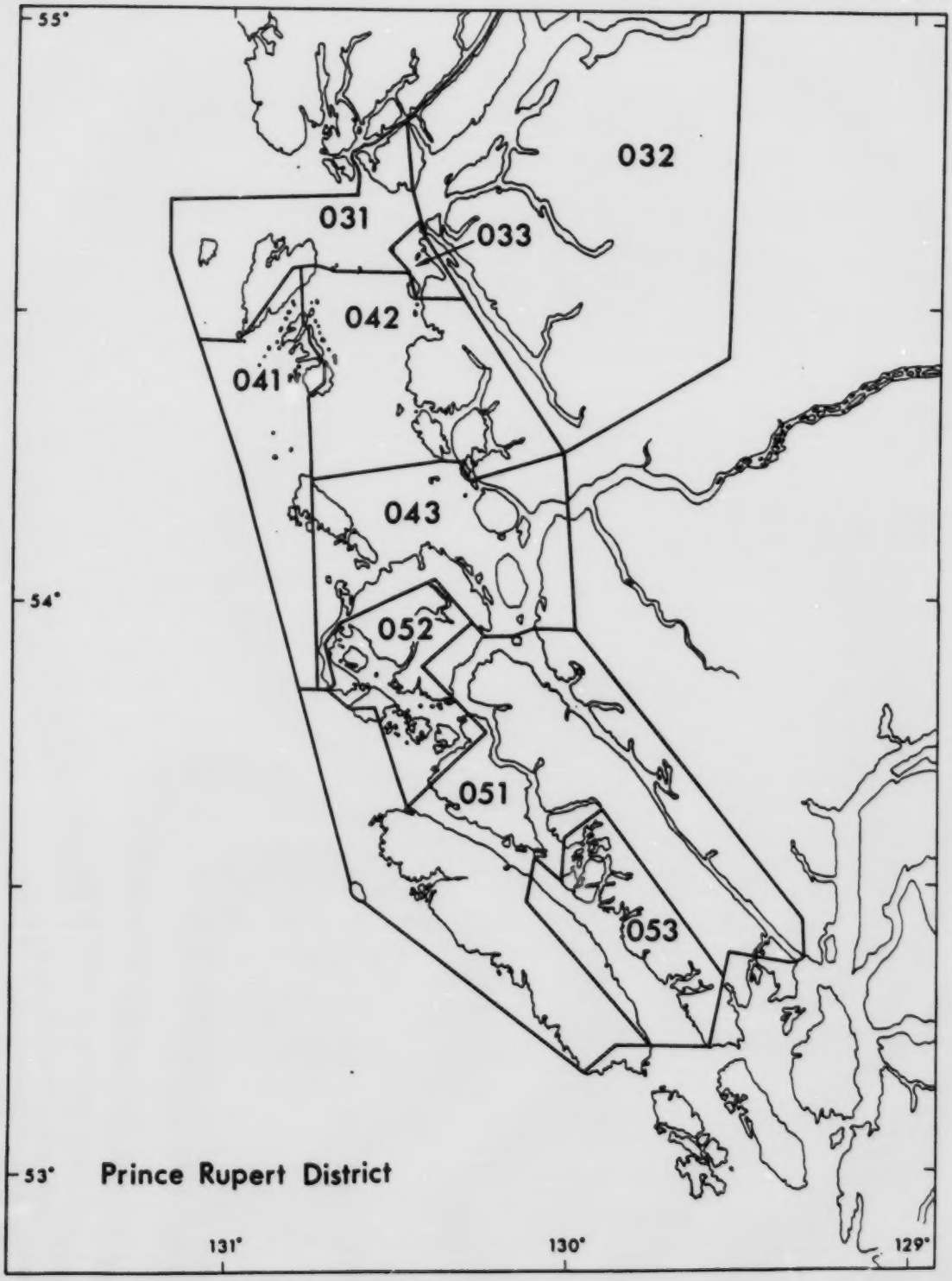

Fig. 5. Herring sections in Central Coast.

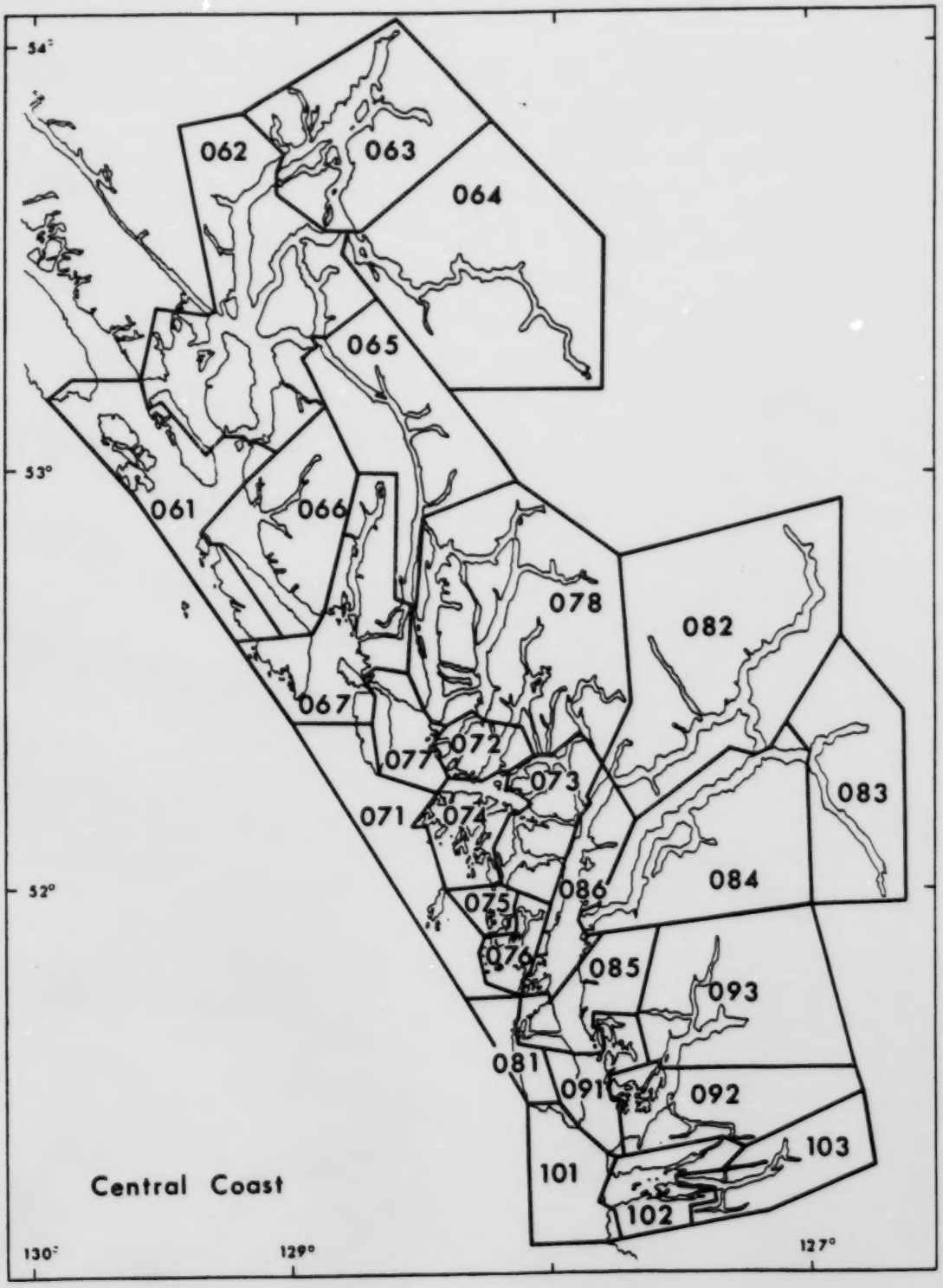

Fig. 6. Herring sections in Johnstone Strait.

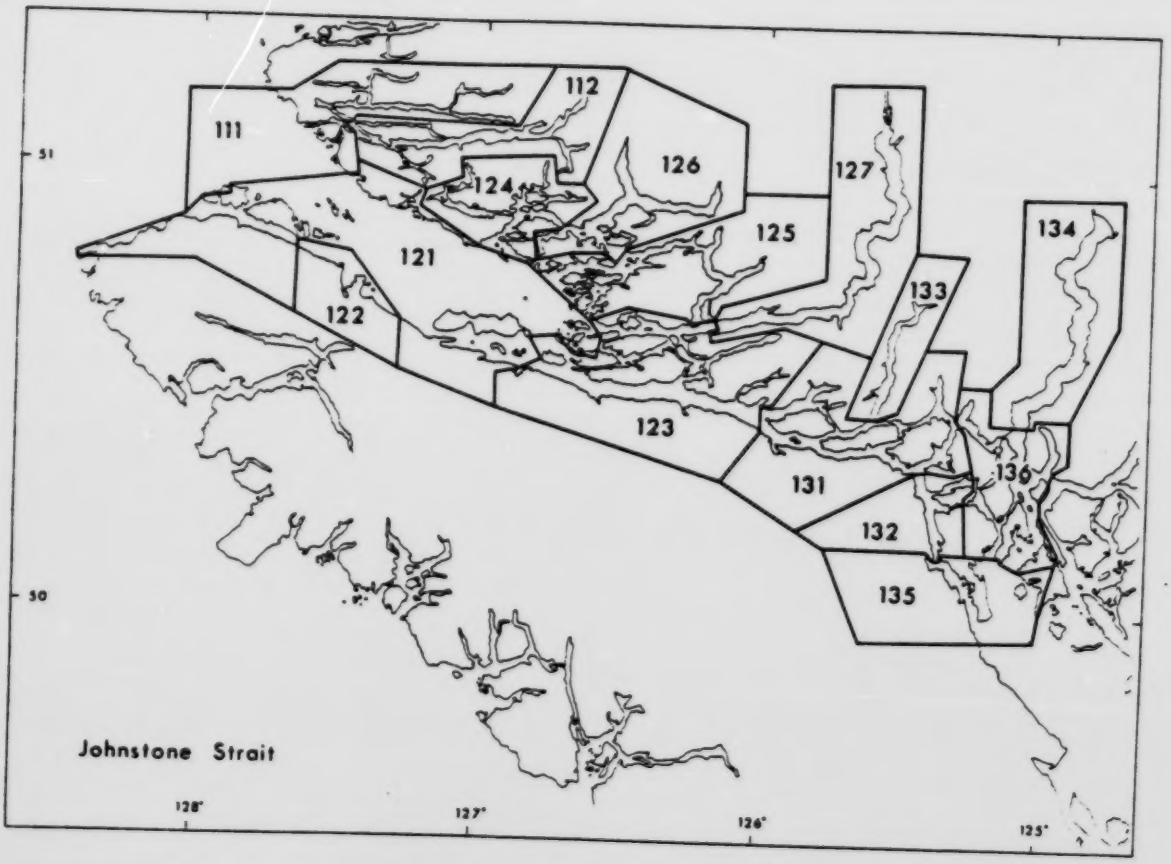

Fig. 7. Herring sections in Strait of Georgia.

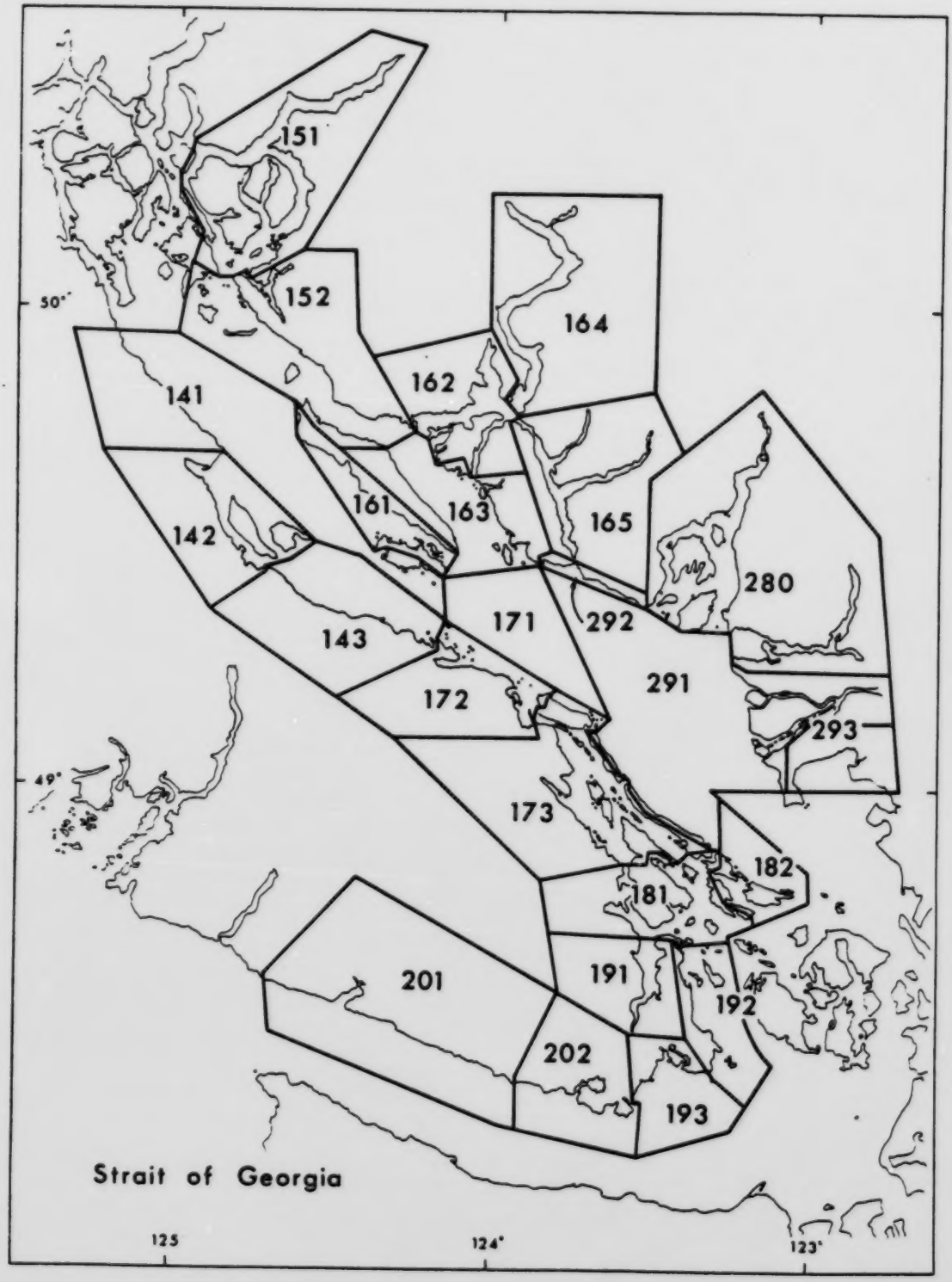

Fig. 8. Herring sections in West Coast Vancouver Island.

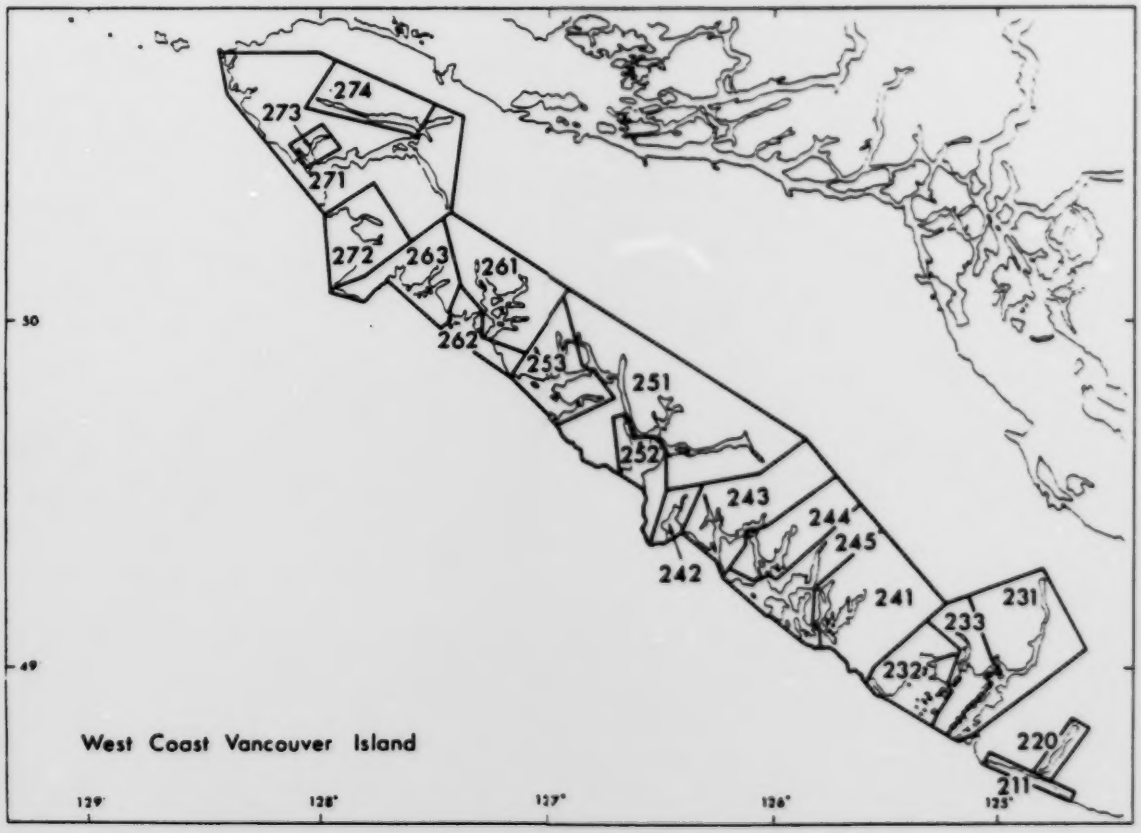

TABLE 11. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SEMIDI". STAT AREA: 2W, 2E, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
003 (2W)	1	Rennell Sd (Log Dump)		14/03/90	1630		20	20	6.0	1	43	50	43	50	7.0	7.0	23	4	16	1	1	23.6
										2	39	49	40	51	8.0	7.8	23	10	7	0	0	
* 496 Herring Tagged										3	42	55	35	45	7.0	7.8	22	4	9	0	0	
										avg.	41	51	39	49	7.3	7.5	23	6	11			
003 (2W)	2	Rennell Sd (Dawson Rd)		15/03/90	1230	1400+	100	35	6.0	1	39	51	38	49	8.8	8.9	27	0	11	0	0	22.7
										2	38	47	43	53	11.0	10.4	34	0	9	0	0	
										3	44	48	47	52	7.0	6.7	21	15	11	0	0	
										4	35	40	52	60	11.7	9.8	36	6	10	0	0	
										5	41	47	46	53	10.0	9.4	32	1	13	0	0	
										avg.	39	47	45	53	9.7	9.0	30	4	11			
002 (2W)	3	Port Louis (Solide I)	30	17/03/90	0725	1000+	300-400	150+	6.5	1	32	41	47	59	14.5	12.3	44	1	2	0	0	23.2
										2	40	44	51	56	14.5	12.9	49	2	0	0	0	
* 497 Herring Tagged										3	45	52	42	48	12.5	13.0	40	1	1	0	0	
										4	37	46	44	54	14.0	13.0	41	1	2	0	1	
										5	41	45	50	55	14.0	12.7	44	1	5	0	0	
										avg.	39	46	47	54	13.9	12.8	44	1	2			
002 (2W)	4	Port Louis (Solide I)	40	18/03/90	0715					Water Haul												
002 (2W)	5	Port Louis (Solide I)	20	18/03/90	0825				6.0	Water Haul												
002 (2W)	6	Port Louis (Solide I)	40	18/03/90	0945				6.0	Water Haul												
003 (2W)	7	Rennell Sd (Riley Cr)	20	21/03/90	1545	1500 Charter	300 Payment	110	7.0	1	23	32	49	68	16.0	11.8	49	0	0	0	0	23.0
										2	26	36	47	64	15.5	12.1	47	0	0	0	0	
									Beg pump	3	39	49	41	51	14.5	14.2	41	0	0	0	0	
									Mid pump	4	36	47	40	53	15.0	14.2	40	0	0	0	0	
									End pump	5	34	45	41	55	14.5	13.2	41	0	0	0	0	
										avg.	32	42	44	58	15.1	13.1	44	0	0			
003 (2W)	8	Rennell Sd (Sheilds Bay)	30	22/03/90	0710		200		6.0	1	42	55	34	45	13.0	14.4	34	0	0	0	1	23.4
										2	34	46	40	54	16.0	14.8	40	0	0	0	1	
										3	33	49	34	51	14.0	13.7	34	0	0	0	0	
										avg.	36	50	36	50	14.3	14.3	36	0	0			
003 (2W)	9	Rennell Sd	25	22/03/90	1045	1500	175	15	6.0	Herring Released - Not Enough for Payment												

TABLE 11 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SEMIDI". STAT AREA:2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
003 (2W)	10	Rennell Sd (Sheilds Bay)	25	22/03/90	1145	Charter Payment	200	120	6.0	1	39	51	38	49	12.0	12.2	37	0	1	0	0	23.2
										2	34	44	44	56	15.0	13.4	44	0	0	0	1	
										3	25	34	49	66	16.5	12.5	49	0	0	1	0	
										4	48	55	39	45	13.5	15.0	39	0	0	0	0	
										5	39	47	44	53	15.0	14.2	44	0	0	0	0	
										6	20	25	60	75	19.0	12.7	60	0	0	0	0	
										7	34	44	44	56	13.8	12.3	43	0	1	0	1	
										8	32	44	41	56	14.5	12.9	39	1	1	0	0	
										9	47	55	38	45	12.5	13.9	36	1	1	0	0	
										avg.	35	45	43	55	14.6	13.6	42	0	0			
003 (2W)	11	Rennell Sd	30	22/03/90	1615	Charter Payment	75	35		1	41	56	32	44	10.5	11.9	30	0	2	0	0	22.8
										2	39	49	41	51	15.0	14.7	41	0	0	0	0	
										3	52	65	28	35	11.0	15.7	28	0	0	0	0	
										4	34	44	43	56	14.5	12.9	42	0	1	0	0	
									Beg pump	5	48	56	37	44	11.8	13.4	36	0	1	0	0	
									End pump	6	47	53	42	47	14.5	15.4	42	0	0	0	0	
										avg.	44	54	37	46	12.9	14.0	37	0	1			
006 (2W)	12	Louscoone Inlet (1km NE Louscoone Pt)	50	26/03/90	0610	6000	400	0	6.8	Water Haul												
006 (2W)	13	Louscoone Inlet (500m SE Tuga Pt)	40	26/03/90	0730	6000		0		Water Haul												
025 (2E)	14	Huston Inlet (W Shore)	15	27/03/90	1035		50	50lb		Water Haul												
025 (2E)	15	Huston Inlet (Head)	12	27/03/90	1150	2500	200	200		1	52	50	51	50	13.5	13.5	51	0	0	0	0	22.0
										2	57	55	46	45	10.5	11.7	46	0	0	0	0	
										3	46	44	59	56	14.5	12.9	56	0	3	0	0	
										4	65	52	59	48	14.5	15.1	59	0	0	0	0	
										avg.	55	50	54	50	13.3	13.3	53	0	1			
025 (2E)	16	Skincuttle Inlet (Kingfisher Cove)	25	28/03/90	0755	4000	300			Water Haul												
025 (2E)	17	Pelican Cove (Pelican Pt)	30	28/03/90	0955	4000	4000	300		1	54	53	47	47	12.5	13.3	44	2	1	0	0	22.0
										2	55	54	47	46	11.3	12.3	45	1	1	0	0	
										3	58	60	39	40	9.5	11.9	38	0	1	0	0	
										4	48	46	56	54	14.5	13.4	56	0	0	0	0	
										avg.	54	53	47	47	12.0	12.7	46	1	1			

* 495 Herring Tagged

TABLE 11 (cont). Seine set date and roe yield information. ROE HERRING CHARTER SEINER "SEMIDI". STAT AREA:2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Sprnd Out	Juv or Imm	Avg. Length (cm)
005 (2W)	18	Kuper Inlet (Hastings Pt)	60	05/04/90	1410	2000	500	50	10.0	1	46	51	44	49	11.0	11.2	44	0	0	0	0	22.5
										2	48	46	57	54	12.5	11.6	57	0	0	0	0	
										3	39	41	56	59	14.0	11.9	56	0	0	0	0	
										avg.	44	46	52	54	12.5	11.6	52	0	0			

* 1499 Herring Tagged

TABLE 12. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SEMIDI". STAT AREA: 2E, 2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
003 (2W)	1	Rennell Sd		14/03/90	1630	1									2	4	22	41	24	6	3		102	23.6	20.0	0
003 (2W)	2	Rennell Sd		15/03/90	1230	2								1	6	21	33	30	14				105	22.7	20.0	1
002 (2W)	3	Port Louis	30	17/03/90	0725	3							1	0	1	7	27	46	15	3			100	23.2	20.0	1
002 (2W)	4	Port Louis	40	18/03/90	0715					Water	Haul															
002 (2W)	5	Port Louis	20	18/03/90	0825					Water	Haul															
002 (2W)	6	Port Louis	40	18/03/90	0945					Water	Haul															
003 (2W)	7	Rennell Sd	20	21/03/90	1545	4						1	1	1	3	6	25	47	19	7			110	23.0	20.0	3
												1	0	1	1	13	17	43	19	5			100	23.0	20.0	2
003 (2W)	8	Rennell Sd	30	22/03/90	0710	5									2	6	22	53	21	2			106	23.4	20.0	0
003 (2W)	9	Rennell Sd	25	22/03/90	1045					Water	Haul															
003 (2W)	10	Rennell Sd	40	22/03/90	1145	6						1	0	0	2	11	22	42	20	3			101	23.2	20.0	1
003 (2W)	11	Rennell Sd	30	22/03/90	1615	7						1	2	2	2	11	32	34	16	1			101	22.8	20.0	5
006 (2W)	12	Louscoone Inlet	50	26/03/90	0610					Water	Haul															
006 (2W)	13	Louscoone Inlet	40	26/03/90	0730					Water	Haul															
025 (2E)	14	Huston Inlet	15	27/03/90	1035					Water	Haul															
025 (2E)	15	Huston Inlet	12	27/03/90	1150	8							1	2	16	41	24	6	9	2			101	22.0	19.0	1
025 (2E)	16	Skincuttle Inlet	25	28/03/90	0755					Water	Haul															
025 (2E)	17	Pelican Cove	30	28/03/90	0955	9							1	3	15	49	22	5	7	5	1		108	22.0	19.0	1
005 (2W)	18	Kuper Inlet	60	05/04/90	1410	10								3	2	24	41	24	5	1			100	22.5	20.0	3

TABLE 13. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "KARENORA II". STAT AREA: 2E, 2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
002 (2W)	1	Rennell Sd (Off Shields Bay)	40	01/03/90	0600	250	250	150+	6.5	1	37	47	42	53	0.0	0.0	0	0	42	0	0	23.1
003 (2W)	2	Seal Inlet (Lauder I)	50	01/03/90	1540	500+	150	125	6.8	1	51	56	40	44	0.0	0.0	0	0	40	0	0	22.6
* 500 Herring Tagged																						
002 (2W)	3	Louis Rocks	70	02/03/90	1750	2500+	500+	300-400	6.9	1	36	45	44	55	0.0	0.0	0	0	44	0	0	23.5
										2	36	46	43	54	0.0	0.0	0	1	42	0	0	
										avg.	36	46	44	55	0.0	0.0	0	1	43			
002 (2W)	4	Port Chanal (Freeman I)	45	03/03/90	0930	500-600	300	125	6.7	1	49	55	40	45	0.0	0.0	0	1	39	0	0	22.9
										2	44	49	45	51	0.0	0.0	0	1	44	0	0	
* 950 Herring Tagged										avg.	47	52	43	48	0.0	0.0	0	1	42			
021 (2E)	5	Huxley I (NE Park I)	45	05/03/90	1520	500+	200	0	7.5	W a t e r H a u l												
021 (2E)	6	Sedgwick Bay (NE at Head)	60	06/03/90	1730	2000	100	0	6.7	W a t e r H a u l												
021 (2E)	7	Sedgwick Bay (NE corner at Head)	35	06/03/90	1820	2000	300	25	6.6	1	57	57	43	43	0.0	0.0	0	0	43	0	3	22.1
										2	54	51	52	49	0.0	0.0	0	0	52	0	2	
* 547 Herring Tagged										avg.	56	54	48	46	0.0	0.0	0	0	48			
021 (2E)	8	Huxley I (NW Shoreline)	45	06/03/90	2200	2000	skimmer	130	7.0	1	40	38	66	62	0.0	0.0	0	0	66	0	0	21.9
										2	55	50	54	50	0.0	0.0	0	0	34	0	1	
										avg.	48	44	60	56	0.0	0.0	0	0	50			
006 (2W)	9	Anthony I (500m E of Ninstints)	50	07/03/90	1525	1000	200	40	7.0	1	19	19	79	81	0.0	0.0	0	0	79	0	0	22.3
										2	18	18	82	82	0.0	0.0	0	1	81	0	0	
* 996 Herring Tagged										3	13	12	92	88	0.0	0.0	0	0	92	0	0	
										avg.	17	16	84	84	0.0	0.0	0	0	84			
003 (2W)	10	Rennell Sd (1km E Sheilds Pt)	30	09/03/90	0900	150	75	0	6.5	W a t e r H a u l												
003 (2W)	11	Seal Inlet (1.5km NE of Lauder I)	40	09/03/90	1535	800	200	200	6.4	1	43	53	38	47	0.5	0.5	1	9	28	0	0	23.1
										2	42	53	38	47	1.0	1.1	4	8	26	0	0	
										3	46	53	40	47	1.0	1.1	5	7	28	0	1	
										4	47	56	37	44	0.0	0.0	2	7	28	0	0	
										avg.	45	54	38	46	0.6	0.7	3	8	28			

TABLE 13 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "KARENORA II". STAT AREA: 2E, 2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
002 (2W)	12	Port Louis (1km W Chanal Pt)	43	10/03/90	1705	2500	300	200	6.5	1	42	53	38	47	3.0	3.2	11	14	13	0	0	23.2
										2	38	49	39	51	4.0	3.9	13	14	12	0	0	
										3	43	48	47	52	7.0	6.7	22	9	16	0	0	
										4	42	51	41	49	7.0	7.1	21	7	13	0	0	
										5	44	54	38	46	8.0	8.7	23	6	9	0	1	
										avg.	42	51	41	49	5.8	5.9	18	10	13			
002 (2W)	13	Port Louis (Inside Turner Pt)	18	13/03/90	1040		30	0	6.7	W a t e r H a u l												
002 (2W)	14	Port Louis (N side Brock I)		15/03/90	1000	1000	600	0	6.6	W a t e r H a u l												
006 (2W)	15	Louscoone Inlet	60	17/03/90	1105	1000	300	0	6.7	W a t e r H a u l												
006 (2W)	16	Louscoone Inlet		17/03/90	1215	1000	200	0	6.7	W a t e r H a u l												
006 (2W)	17	Louscoone Inlet (Crooked Pt)	40	18/03/90	0645	1400	350	300	6.7	1	41	44	53	56	12.0	10.7	44	4	5	0	0	22.4
										2	51	50	51	50	10.0	10.0	40	2	9	0	0	
										3	45	43	59	57	13.0	11.4	49	4	6	0	1	
										4	58	54	49	46	10.0	10.9	35	5	9	0	1	
										avg.	49	48	53	52	11.3	10.7	42	4	7			
006 (2W)	18	Louscoone Inlet (Crooked Pt)	50	19/03/90	0640	2000	400	150	6.7	1	43	42	59	58	13.5	11.6	51	2	6	0	0	22.1
										2	34	35	62	65	15.0	11.5	51	3	8	0	1	
* 395 Herring Tagged										3	41	39	65	61	12.5	10.2	49	3	13	0	0	
										4	46	47	52	53	12.0	11.3	45	2	5	0	0	
										avg.	41	41	60	59	13.3	11.2	49	3	8			
006 (2W)	19	Flamingo Inlet	40	19/03/90	1115	250	200	200	6.9	1	35	42	49	58	11.0	9.5	42	2	5	0	0	22.4
										2	42	44	53	56	12.0	10.7	47	2	4	0	1	
										3	45	44	58	56	12.5	11.2	47	5	6	0	1	
										avg.	41	43	53	57	11.8	10.5	45	3	5			
006 (2W)	20	Louscoone Inlet (Skindaskun I)		20/03/90	1905			150+		1	51	51	49	49	12.0	12.2	49	0	0	0	0	21.9
										2	52	53	47	47	11.0	11.7	45	1	1	0	0	
										3	44	44	55	56	13.0	11.6	51	1	3	0	0	
										avg.	49	49	50	51	12.0	11.9	48	1	1			
006 (2W)	21	Louscoone Inlet (Adams Rocks)	30	21/03/90	0630		150		7.0	W a t e r H a u l												

TABLE 13 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "KARENORA II". STAT AREA: 2E, 2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
006 (2W)	22	Louscoone Inlet (W Skindaskun I)	35	22/03/90	0640	2000	1500	350	6.8	1	46	47	51	53	13.0	12.3	47	2	2	0	0	22.1
										2	38	37	65	63	15.0	11.9	61	1	3	0	0	
										3	47	43	63	57	14.5	12.7	60	3	0	0	0	
										4	56	51	53	49	13.0	13.3	52	1	0	0	0	
										avg.	47	45	58	56	13.9	12.5	55	2	1			
006 (2W)	23	Louscoone Inlet (Louscoone Pt)	35	23/03/90	1710	2000	200	30	7.0	1	47	53	42	47	10.0	10.6	39	0	3	0	0	22.1
										2	57	64	32	36	7.8	10.8	32	0	0	0	0	
										3	45	47	51	53	13.0	12.3	50	0	1	0	0	
										4	57	55	46	45	10.5	11.7	45	0	1	0	0	
										5	52	50	52	50	13.3	13.3	50	1	1	0	0	
										avg.	52	54	45	46	10.9	11.7	43	0	1			
006 (2W)	24	Louscoone Inlet		24/03/90	0635		250+			Water Haul												
006 (2W)	25	Louscoone Inlet (Etches Pt)	35	24/03/90	1200	4500	250	400	7.4	1	40	43	54	57	14.0	12.3	54	0	0	1	0	22.4
										2	54	54	46	46	13.0	14.1	46	0	0	0	0	
										3	46	48	50	52	12.0	11.5	50	0	0	0	0	
										4	52	46	60	54	14.5	13.4	58	0	2	0	0	
										avg.	48	48	53	52	13.4	12.8	52	0	1			
006 (2W)	26	Louscoone Inlet (Skindaskun I)	30	24/03/90	1700	4000	150	100	7.4	1	48	48	53	52	13.8	13.3	52	0	1	0	0	22.6
										2	44	49	45	51	12.0	11.8	45	0	0	0	0	
										3	43	44	54	56	14.0	12.5	54	0	0	0	0	
										avg.	45	47	51	53	13.3	12.5	50	0	0			
* 999 Herring Tagged																						
006 (2W)	27	Louscoone Inlet		26/03/90	0540		40	15		1	37	37	64	63	16.5	13.1	64	0	0	0	0	21.6
										2	49	46	57	54	14.0	13.0	57	0	0	0	1	
										3	62	54	52	46	14.5	15.8	52	0	0	0	0	
										avg.	49	46	58	54	15.0	13.9	58	0	0			
006 (2W)	28	Louscoone Inlet (Etches Pt)		26/03/90	0705					Water Haul												

TABLE 14. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "KARENORA II" STAT AREA: 2E, 2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
002 (2W)	1	Rennell Sd	40	01/03/90	0600	1						1	0	0	3	8	32	34	19	0	1	1	99	23.1	20.0	1
003 (2W)	2	Seal Inlet	50	01/03/90	1540	2								1	4	21	39	30	5				100	22.6	20.0	1
002 (2W)	3	Louis Rocks	70	02/03/90	1750	3							1	0	0	4	25	43	22	4	2		101	23.5	20.0	1
002 (2W)	4	Port Chanal	45	03/03/90	0930	4								1	8	9	26	46	9	3			102	22.9	20.0	1
021 (2E)	5	Huxley I	45	05/03/90	1520						Water	Haul														
021 (2E)	6	Sedgwick Bay	60	06/03/90	1730						Water	Haul														
021 (2E)	7	Sedgwick Bay	35	06/03/90	1820	5							2	4	16	35	15	13	12	2	1		100	22.1	19.0	2
021 (2E)	8	Huxley I	45	06/03/90	2200	6							2	4	23	33	18	7	11	3	1		102	21.9	19.0	2
006 (2W)	9	Anthony I	50	07/03/90	1525	7								3	10	23	38	18	7	1			100	22.3	20.0	3
003 (2W)	10	Rennell Sd	30	09/03/90	0900						Water	Haul														
003 (2W)	11	Seal Inlet	40	09/03/90	1535	8									6	9	25	40	18	2			100	23.1	20.0	0
002 (2W)	12	Port Louis	43	10/03/90	1705	9										12	31	39	16	1		1	100	23.2	20.0	0
002 (2W)	13	Port Louis	18	13/03/90	1040						Water	Haul														
002 (2W)	14	Port Louis		15/03/90	1000						Water	Haul														
006 (2W)	15	Louscoone Inlet	60	17/03/90	1105						Water	Haul														
006 (2W)	16	Louscoone Inlet		17/03/90	1215						Water	Haul														
006 (2W)	17	Louscoone Inlet	40	18/03/90	0645	10								1	13	19	34	25	7	1			100	22.4	20.0	1
006 (2W)	18	Louscoone Inlet	50	19/03/90	0640	11								6	8	26	38	22					100	22.1	20.0	6
006 (2W)	19	Flamingo Inlet	40	19/03/90	1115	12							1	2	11	21	33	23	9				100	22.4	20.0	3
006 (2W)	20	Louscoone Inlet		20/03/90	1905	13							1	6	11	32	44	10	1				105	21.9	20.0	7
006 (2W)	21	Louscoone Inlet	30	21/03/90	0630						Water	Haul														
006 (2W)	22	Louscoone Inlet	35	22/03/90	0640	15								3	9	32	40	11	4	1			100	22.1	20.0	3
006 (2W)	23	Louscoone Inlet	35	23/03/90	1710	16							1	2	11	34	36	14	3	2			103	22.1	20.0	3
006 (2W)	24	Louscoone Inlet		24/03/90	0635						Water	Haul														
006 (2W)	25	Louscoone Inlet	35	24/03/90	1200	17								3	11	20	40	16	6	3			99	22.4	20.0	3

TABLE 14 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "KAREHORA II" STAT AREA: 2E, 2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
006 (2W)	26	Louscoone Inlet	30	24/03/90	1700	18				0	0	0	0	5	5	15	34	34	8					101	22.6	20.0	5
006 (2W)	27	Louscoone Inlet		26/03/90	0540	19				1	0	0	1	9	19	37	29	5	3	1				105	21.6	20.0	10
006 (2W)	28	Louscoone Inlet		26/03/90	0705					W a t e r			H a u l														

TABLE 15. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA: 2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
025 (2E)	1	Skincuttle Inlet (Mid Deluge Pt & Jedway Bay)	35	08/03/90	1755	1100	200	0	6.7	W a t e r					H a u l							
025 (2E)	2	Skincuttle Inlet (Mid Slug Inlet & Jedway Bay)	60	08/03/90	2010	1200	140	140	6.7	1	56	58	40	42	4.0	4.8	20	4	16	0	0	22.5
										2	55	56	43	44	4.0	4.5	21	6	16	0	0	
										3	61	57	46	43	4.0	4.7	19	6	21	0	0	
										avg.	57	57	43	43	4.0	4.7	20	5	18			
* 499 Herring Tagged																						
021 (2E)	3	Burnaby Str	60	09/03/90	1940	4000-5000	skimmer	100	6.6	1	52	46	62	54	0.0	0.0	0	0	62	0	2	21.5
										2	50	44	64	56	0.0	0.0	1	0	63	0	0	
										3	45	39	69	61	0.0	0.0	0	1	68	0	1	
										4	51	43	68	57	0.0	0.0	0	1	67	0	1	
										avg.	50	43	66	57	0.0	0.0	0	1	65			
* 500 Herring Tagged																						
021 (2E)	4	Sedgwick Bay	45	10/03/90	0730	1500	80	0	6.7	W a t e r					H a u l							
021 (2E)	5	Sedgwick Bay	60	10/03/90	0840	1500	100	0	6.7	W a t e r					H a u l							
021 (2E)	6	Sedgwick Bay	60	10/03/90	1015	1500	200	0	6.7	W a t e r					H a u l							
021 (2E)	7	Sedgwick Bay	60	10/03/90	1220	2000	250	25	6.7	1	59	58	43	42	0.0	0.0	0	0	43	0	0	21.9
										2	65	63	39	37	0.0	0.0	0	0	39	0	0	
										3	54	55	44	45	0.0	0.0	0	0	44	0	0	
										4	60	58	44	42	0.0	0.0	0	0	44	0	0	
										avg.	60	59	43	42	0.0	0.0	0	0	43			
* 500 Herring Tagged																						
006 (2W)	8	Louscoone Inlet	60	11/03/90	0535	2000	300	100	5.7	1	56	56	44	44	6.5	7.4	32	4	8	0	0	22.5
										2	49	49	51	51	7.0	6.9	32	9	10	0	0	
										3	49	48	53	52	7.0	6.7	30	7	16	0	0	
										4	50	48	55	52	10.0	9.6	37	11	7	0	0	
										5	49	51	48	49	6.5	6.6	24	8	16	0	0	
										avg.	51	50	50	50	7.4	7.4	31	8	11			
* 500 Herring Tagged																						
006 (2W)	9	Flamingo Inlet	40	11/03/90	0850	300	50	0	6.4	W a t e r					H a u l							
006 (2W)	10	Louscoone Inlet	65	11/03/90	1405	2000	100	0	6.6	W a t e r					H a u l							

TABLE 15 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA: 2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
025 (2E)	11	Huston Inlet	25	11/03/90	1823	500-600	80	70	6.9	1	46	45	57	55	10.0	9.1	41	5	11	0	0	22.1
										2	60	58	43	42	8.0	9.5	33	1	9	0	0	
										3	47	43	62	57	11.5	10.1	48	2	12	0	0	
										4	53	50	53	50	10.0	10.0	40	8	5	0	0	
										5	47	42	66	58	10.0	8.6	42	7	17	0	0	
										avg.	51	48	56	52	9.9	9.5	41	5	11			
* 500 Herring Tagged																						
025 (2E)	12	Skincuttle Inlet (N.E. Bolkus I)	45	14/03/90	0715	900	900	2	6.9	1	57	58	41	42	5.5	6.5	21	2	18	0	0	22.2
										2	51	50	52	50	6.0	6.0	27	2	23	0	1	
										3	65	62	40	38	4.5	5.9	19	2	19	0	0	
										4	68	67	34	33	3.5	5.3	14	3	17	0	1	
										5	71	66	36	34	2.0	2.9	10	1	25	0	0	
										avg.	62	61	41	39	4.3	5.3	18	2	20			
021 (2E)	13	Sedgwick Bay	60	14/03/90	2000	3500	skimmer	15	7.0	1	56	51	53	49	0.5	0.5	6	5	42	0	3	21.8
										2	55	52	50	48	0.8	0.8	7	4	39	0	7	
										3	55	51	53	49	0.0	0.0	2	2	49	0	8	
										4	53	52	49	48	0.5	0.5	4	1	44	0	9	
										5	55	49	57	51	0.0	0.0	1	2	54	0	10	
										avg.	55	51	52	49	0.4	0.4	4	3	46			
* 1000 Herring Tagged																						
021 (2E)	14	Sedgwick Bay	60	14/03/90	2145	3500	skimmer	40	7.0	1	57	53	50	47	0.0	0.0	1	2	47	0	6	21.7
										2	58	50	57	50	0.0	0.0	1	1	55	0	1	
										3	72	62	44	38	0.0	0.0	0	3	41	0	3	
										4	77	69	35	31	0.0	0.0	0	2	33	0	4	
										avg.	66	59	47	42	0.0	0.0	1	2	44			
025 (2E)	15	Huston Inlet	22	15/03/90	1055	1000	130	5	6.9	1	45	49	46	51	10.0	9.8	36	2	8	0	0	23.0
										2	56	58	41	42	9.0	10.7	35	0	6	0	0	
										3	51	54	43	46	9.5	10.3	34	2	7	0	0	
										4	52	57	39	43	8.5	9.9	30	1	8	0	0	
										5	57	54	48	46	10.0	10.9	35	6	7	0	0	
										avg.	52	54	43	46	9.4	10.3	34	2	7			
025 (2E)	16	Skincuttle Inlet (NE Bolkus I)	55	16/03/90	0706	1000	150	100	7.1	1	56	54	47	46	5.8	6.3	24	0	23	0	1	21.8
										2	48	43	63	57	7.0	6.1	30	4	29	0	0	
										3	55	48	60	52	5.0	4.8	24	1	35	0	1	
										4	60	53	53	47	5.5	5.9	22	4	27	0	3	
										5	56	50	55	50	4.0	4.0	20	2	33	0	1	
										avg.	55	50	56	50	5.5	5.4	24	2	29			
* 999 Herring Tagged																						

TABLE 15 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA: 2E,2W, 1990

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
021 (2E)	17	Juan Perez Sd (All Alone Stone)	60	16/03/90	2000	4500	skimmer	200	7.2	1	43	41	62	59	3.0	2.5	15	10	37	0	4	22.1
										2	53	48	58	52	3.5	3.4	17	4	37	0	4	
										3	57	54	49	46	3.5	3.8	13	5	31	0	2	
										4	48	43	63	57	3.5	3.1	16	11	36	0	2	
										5	53	48	58	52	2.0	1.9	11	9	38	0	1	
										avg.	51	47	58	53	3.1	2.9	14	8	36			
* 498 Herring Tagged																						
025 (2E)	18	Huston Inlet (Head)	14	18/03/90	0640	2000	120	30	7.2	1	45	47	50	53	13.0	12.3	48	1	1	0	0	22.6
										2	47	46	56	54	15.0	13.9	54	1	1	0	0	
										3	56	53	49	47	11.0	11.7	43	1	5	0	0	
										4	61	59	42	41	10.0	12.2	39	2	1	0	1	
										5	53	51	51	49	12.0	12.2	45	1	5	0	0	
										avg.	52	51	50	49	12.2	12.5	46	1	3			
025 (2E)	19	Darwin Sd (Richardson Pt)	30	18/03/90	1656	800	150	0	7.4	W a t e r H a u l												
025 (2E)	20	Darwin Sd (Lower)	35	18/03/90	2010	1000	skimmer	70	7.4	1	45	46	53	54	6.0	5.6	28	4	21	0	1	22.2
										2	53	54	46	46	5.5	6.0	22	3	21	0	0	
										3	53	52	49	48	7.0	7.3	29	7	13	0	0	
										4	38	39	60	61	8.5	7.0	32	3	25	0	3	
										5	55	51	53	49	4.5	4.6	20	3	30	0	0	
										avg.	49	48	52	52	6.3	6.1	26	4	22			
021 (2E)	21	Sedgwick Bay	70	18/03/90	2217	700-800	skimmer	20	7.3	1	54	51	52	49	0.8	0.8	5	9	38	0	0	22.6
										2	60	59	42	41	1.0	1.2	7	2	33	0	1	
										3	66	62	41	38	0.5	0.7	6	3	32	0	2	
										4	42	42	58	58	1.0	0.9	7	8	43	0	0	
										5	59	54	51	46	0.5	0.5	3	8	40	0	3	
										avg.	56	54	49	46	0.8	0.8	6	6	37			
021 (2E)	22	Juan Perez Sd (Ent. Werner Bay)	55	19/03/90	2025	5000	skimmer	100	7.4	1	53	44	68	56	3.0	2.7	17	4	47	0	1	21.3
										2	55	46	64	54	2.0	1.9	12	5	47	0	1	
										3	53	44	68	56	2.5	2.2	18	3	47	0	1	
										4	50	42	68	58	2.0	1.7	11	4	53	0	4	
										5	50	38	80	62	2.0	1.6	15	2	63	0	2	
										avg.	52	43	70	57	2.3	2.0	15	4	51			
021 (2E)	23	Juan Perez Sd (Werner Pt)	45	19/03/90	2207	5000	skimmer	130	7.4	1	53	46	63	54	6.0	5.6	28	4	31	0	0	21.5
										2	53	45	64	55	6.0	5.5	28	7	29	0	1	
										3	57	45	70	55	6.0	5.5	36	8	26	0	0	
										4	64	53	56	47	6.0	6.4	30	5	21	0	1	
										5	57	50	58	50	4.0	4.0	22	6	30	0	0	
										avg.	57	48	62	52	5.6	5.4	29	6	27			

Table 15 (cont). Seine set data and roe yeild information. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA:2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
025 (2E)	24	Huston Inlet (Mid)	20	20/03/90	0735	1500-1700	500	150	7.4	1	53	56	41	44	10.0	11.4	38	1	2	0	1	22.6
										2	54	54	46	46	12.0	13.0	43	1	2	0	0	
										3	52	55	42	45	10.5	11.7	38	2	2	0	0	
										4	57	56	45	44	12.0	13.6	41	2	2	0	0	
										5	63	60	42	40	11.0	13.8	38	1	3	0	0	
										avg.	56	56	43	44	11.1	12.7	40	1	2			
021 (2E)	25	Burnaby Str (Middle)	65	20/03/90	2105	1500-1800	400	150	7.5	1	57	50	56	50	5.0	5.0	26	7	23	0	0	21.3
										2	59	49	61	51	7.5	7.4	32	4	25	0	0	
										3	65	54	55	46	6.0	6.5	29	5	21	0	0	
										4	62	53	55	47	4.5	4.8	22	8	25	0	0	
										5	62	51	60	49	7.0	7.1	33	10	17	0	0	
										avg.	61	51	57	49	6.0	6.2	28	7	22			
025 (2E)	26	Darwin Sd (Richardson Pt)	50	21/03/90	1805	1100	300	0	7.6	W a t e r H a u l												
021 (2E)	27	Sedgwick Bay	40	21/03/90	2100	2000	skimmer	100	7.3	1	48	48	52	52	6.5	6.3	28	10	14	0	0	22.3
										2	55	56	44	44	6.5	7.4	27	4	13	0	0	
										3	50	51	49	49	11.0	11.2	44	4	1	0	0	
										4	57	54	49	46	9.0	9.8	32	6	11	0	0	
										5	52	52	48	48	8.0	8.3	32	4	12	0	0	
										avg.	52	52	48	48	8.2	8.6	33	6	10			
021 (2E)	28	Burnaby Str (Huxley I)	50	22/03/90	0745	3000	150	80	7.4	1	51	53	46	47	8.0	8.5	33	7	6	0	0	22.4
										2	47	48	51	52	12.5	12.0	45	2	4	0	0	
										3	52	52	48	48	10.5	10.9	41	1	6	0	1	
										4	60	57	46	43	9.5	11.0	36	2	8	0	0	
										5	51	48	56	52	12.5	12.0	46	2	8	0	0	
										avg.	52	52	49	48	10.6	10.9	40	3	6			
025 (2E)	29	Huston Inlet	27	23/03/90	0816	2500	60	0	7.0	W a t e r H a u l												
025 (2E)	30	Huston Inlet	20	23/03/90	0928	2500	100	10	7.0	1	49	49	50	51	12.5	12.3	49	0	1	0	0	22.0
										2	40	39	63	61	14.0	11.5	61	1	1	0	0	
										3	63	53	57	47	12.0	12.8	54	0	3	0	0	
										4	55	48	59	52	13.0	12.5	59	0	0	0	0	
										5	48	42	65	58	14.0	12.1	59	2	4	0	1	
										avg.	51	46	59	54	13.1	12.2	56	1	2			

TABLE 15. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA: 2E, 2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
021 (2E)	31	Juan Perez Sd (W of Huxley I)	55	23/03/90	2145	400	200	120	7.3	1	54	54	46	46	10.0	10.9	41	1	4	0	0	22.3
										2	61	59	43	41	8.0	9.8	33	1	9	0		
										3	70	63	42	37	6.5	8.8	31	3	8	0	0	
										4	56	51	54	49	10.0	10.2	39	5	10	0	0	
										5	59	55	48	45	7.0	7.8	29	4	15	0	2	
										avg.	60	56	47	44	8.3	9.5	35	3	9			
021 (2E)	32	Burnaby Str (Off Kat I)	26	24/03/90	0630	1500	150	120	7.3	1	48	45	58	55	11.8	10.7	50	2	6	0	0	21.5
										2	57	48	61	52	10.5	10.1	46	6	9	0	0	
										3	45	39	69	61	12.5	10.2	53	5	11	0	0	
										4	47	42	65	58	13.0	11.2	55	1	9	0	0	
										5	54	45	65	55	13.0	11.8	54	4	7	0	0	
										avg.	50	44	64	56	12.2	10.8	52	4	8			
021 (2E)	33	Sedgwick Bay	45	24/03/90	2124	1500	skimmer	75	7.4	1	65	60	44	40	6.0	7.5	26	2	16	0	0	22.1
										2	42	41	61	59	9.0	7.6	39	2	20	0	1	
										3	48	45	59	55	9.0	8.2	38	3	18	0	0	
										4	54	44	68	56	10.0	8.9	44	3	21	0	0	
										5	62	52	57	48	10.0	10.4	41	1	15	0	0	
										avg.	54	48	58	52	8.8	8.5	38	2	18			
021 (2E)	34	Burnaby Str (Off Section I)	35	25/03/90	1320	4500	150	0	7.6	W a t e r H a u l												
021 (2E)	35	Burnaby Str (Off Section I)	33	25/03/90	1410	3000-4000	250	100	7.6	1	58	49	60	51	8.5	8.3	43	1	16	0	0	21.3
										2	50	43	67	57	10.5	9.2	50	3	14	0	1	
										3	61	50	62	50	8.5	8.5	40	2	20	0	1	
										4	61	50	62	50	9.5	9.5	41	2	19	0	0	
										5	64	52	59	48	10.0	10.4	44	6	9	0	0	
										avg.	59	49	62	51	9.4	9.2	44	3	16			
021 (2E)	36	Burnaby Str (Off Kat I)	25	25/03/90	1605	3000-4000	300	150	7.6	1	66	62	41	38	8.5	11.2	33	1	7	0	0	22.1
										2	55	53	48	47	11.0	11.7	45	2	1	0	0	
										3	44	41	63	59	14.0	11.9	57	2	4	0	1	
										4	52	49	55	51	14.0	13.7	49	2	4	0	0	
										5	48	43	63	57	12.0	10.5	49	4	10	0	0	
										avg.	53	50	54	50	11.9	11.8	47	2	5			
006 (2W)	37	Louscoone Inlet	55	26/03/90	0725	6000	300	200	7.2	1	58	62	36	38	8.8	11.5	36	0	0	0	0	22.3
										2	45	51	44	49	11.5	11.7	43	1	0	0	0	
										3	38	40	58	60	15.0	12.5	57	1	0	0	0	
										4	49	51	47	49	12.0	12.2	45	1	1	0	0	
										5	42	45	51	55	13.5	12.3	51	0	0	0	0	
										avg.	46	50	47	50	12.2	12.1	46	1	0			

TABLE 15 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA:2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
006 (2W)	38	Louscoone Inlet	60	27/03/90	1443	1750	120	0	7.5	W a t e r H a u l												
006 (2W)	39	Louscoone Inlet	30	27/03/90	2005	1500-2000	120	10	7.5	1	37	35	69	65	16.0	12.3	68	0	1	0	0	22.0
										2	41	38	68	62	16.0	12.9	65	1	2	0	0	
										avg.	39	37	69	64	16.0	12.6	67	1	2			
006 (2W)	40	Louscoone Inlet	40	28/03/90	0707	1500-2000	150	60	7.5	1	56	54	48	46	11.0	12.0	48	0	0	0	0	22.1
										2	50	47	57	53	12.0	11.3	55	1	1	0	0	
										3	54	50	54	50	12.0	12.0	53	0	1	0	0	
										4	58	52	54	48	11.8	12.2	53	0	1	0	0	
										5	69	61	44	39	10.0	12.8	44	0	0	0	0	
										avg.	57	53	51	47	11.4	12.1	51	0	1			
006 (2W)	41	Louscoone Inlet	30	28/03/90	1015	1500-2000	200	10	7.5	1	57	53	51	47	12.0	12.8	50	0	1	0	0	22.2
										2	48	47	54	53	13.0	12.3	51	2	1	0	0	
										avg.	53	50	53	50	12.5	12.5	51	1	1			
025 (2E)	42	Skincuttle Inlet (Swan Bay)	25	28/03/90	1615	4000	500	250	7.4	1	53	56	42	44	10.8	12.2	41	0	1	0	0	22.2
										2	44	41	63	59	15.5	13.1	61	0	2	0	1	
										3	59	55	49	45	12.0	13.3	46	1	2	0	0	
										4	49	46	57	54	14.0	13.0	56	0	1	0	0	
										5	51	50	52	50	13.0	13.0	50	0	2	0	0	
						Charter Payment			Beg Pump	6	59	54	50	46	13.0	14.1	50	0	0	0	0	21.8
										7	48	43	64	57	15.5	13.6	63	1	0	0	1	
										8	62	56	48	44	12.0	13.6	46	0	2	0	0	
									Mid Pump	9	67	62	41	38	10.8	14.1	40	1	0	0	0	22.5
										10	65	59	46	41	12.5	15.2	46	0	0	0	0	
										11	49	49	52	51	15.0	14.7	52	0	0	0	1	
									End Pump	12	67	58	48	42	11.3	13.4	45	0	3	0	0	21.8
										13	57	52	52	48	12.0	12.5	50	0	2	0	0	
										14	72	63	43	37	11.0	14.9	41	0	2	0	0	
										15	63	56	50	44	13.0	14.8	49	0	1	0	0	
										16	56	48	60	52	14.0	13.5	58	1	1	0	0	
										avg.	58	53	51	47	12.8	13.7	50	0	1			
021 (2E)	43	Juan Perez Sd (Sedgwick Bay)	30	31/03/90	1200	900	120	30	7.9	1	35	34	67	66	17.0	12.9	64	2	1	0	0	22.2
										2	63	59	44	41	11.5	14.0	41	0	3	0	0	
										3	61	54	52	46	11.5	12.5	48	1	3	0	0	
										4	76	64	43	36	10.5	14.6	42	0	1	0	0	
										5	52	46	62	54	13.5	12.5	57	1	4	0	0	
										avg.	57	51	54	49	12.8	13.3	50	1	2			

TABLE 15 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA:2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
024 (2E)	44	Selwyn Inlet (Traynor Cr)	50	01/04/90	1923	2000	120	120	7.8	1	58	50	58	50	14.5	14.5	58	0	0	0	0	21.4
										2	55	49	57	51	14.8	14.5	56	1	0	0	0	
										3	57	49	60	51	14.3	14.0	58	2	0	0	0	
										4	62	52	58	48	14.0	14.6	57	1	0	0	0	
										5	54	43	72	57	17.0	14.9	70	0	2	0	0	
										avg.	57	49	61	51	14.9	14.5	60	1	0			
023 (2E)	45	Cumshewa Inlet (Dawson Cove)	45	03/04/90	0857	200	100	100	7.2	1	57	50	57	50	14.0	14.0	56	0	1	0	0	22.2
										2	54	50	54	50	14.0	14.0	54	0	0	0	0	
										3	48	45	58	55	14.5	13.2	57	0	1	0	0	
										4	47	42	65	58	16.0	13.8	65	0	0	0	0	
										5	73	61	47	39	11.0	14.1	47	0	0	0	0	
										avg.	56	50	56	50	13.9	13.8	56	0	0			
024 (2E)	46	Selwyn Inlet (Rockfish Harbour)		04/04/90	1155	800			7.3	W a t e r H a u l												
024 (2E)	47	Selwyn Inlet (Kilmington Pt)		04/04/90	1235	1000 Sample is not	350	2 Representative	7.3	1	70	61	45	39	9.0	11.5	44	0	1	0	0	20.6
										2	84	68	39	32	9.0	14.1	38	1	0	0	0	
										3	75	61	48	39	12.0	15.4	48	0	0	0	0	
										avg.	76	63	44	37	10.0	13.7	43	0	0			
024 (2E)	48	Selwyn Inlet (Kilmington Pt)	50	04/04/90	1400	1000	350	250	7.3	1	47	45	58	55	16.0	14.5	58	0	0	0	0	21.2
										2	51	48	56	52	13.5	13.0	54	1	1	0	0	
										3	56	52	52	48	12.5	13.0	51	1	0	0	0	
										avg.	51	48	55	52	14.0	13.5	54	1	0			

TABLE 16. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA: 2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
025 (2E)	1	Skincuttle Inlet	35	08/03/90	1755		Water Haul																			
025 (2E)	2	Skincuttle Inlet	60	08/03/90	2010	1								1	6	34	30	15	11	2	1		100	22.5	19.0	0
021 (2E)	3	Burnaby Str	60	09/03/90	1940	2							1	6	30	36	13	10	4				100	21.5	19.0	1
021 (2E)	4	Sedgwick Bay	45	10/03/90	0730		Water Haul																			
021 (2E)	5	Sedgwick Bay	60	10/03/90	0840		Water Haul																			
021 (2E)	6	Sedgwick Bay	60	10/03/90	1015		Water Haul																			
021 (2E)	7	Sedgwick Bay	60	10/03/90	1220	3			1	0	1	5	25	25	20	13	7	1	2				100	21.9	19.0	2
006 (2W)	8	Louscoone Inlet	60	11/03/90	0535	4				1	1	2	6	17	39	28	6						100	22.5	19.0	4
006 (2W)	9	Flamingo Inlet	40	11/03/90	0850		Water Haul																			
006 (2W)	10	Louscoone Inlet	65	11/03/90	1405		Water Haul																			
025 (2E)	11	Huston Inlet	25	13/03/90	1823	5								4	15	38	17	17	8	1			100	22.1	19.0	0
025 (2E)	12	Skincuttle Inlet	45	14/03/90	0715	6								2	14	33	29	12	6	2	2		100	22.2	19.0	0
021 (2E)	13	Sedgwick Bay	60	14/03/90	2000	7						2	1	9	21	27	14	15	9	2			100	21.8	19.0	3
021 (2E)	14	Sedgwick Bay	60	14/03/90	2145	8							2	13	26	26	9	11	10	1	2		100	21.7	19.0	2
025 (2E)	15	Huston Inlet	22	15/03/90	1055	9									2	32	22	20	11	11	2		100	23.0	19.0	0
025 (2E)	16	Skincuttle Inlet	55	16/03/90	0706	10								5	18	41	23	5	5	3			100	21.8	19.0	0
021 (2E)	17	Juan Perez Sd	60	16/03/90	2000	11								7	15	39	15	8	11	4	1		100	22.1	19.0	0
025 (2E)	18	Huston Inlet	14	18/03/90	0640	12									10	29	29	12	14	6			100	22.6	19.0	0
025 (2E)	19	Darwin Sd	30	18/03/90	1656		Water Haul																			
025 (2E)	20	Darwin Sd	35	18/03/90	2010	13								5	15	24	31	13	7	5			100	22.2	19.0	0
021 (2E)	21	Sedgwick Bay	70	18/03/90	2217	14							1	2	18	20	17	13	25	4			100	22.6	19.0	1
021 (2E)	22	Juan Perez Sd	55	19/03/90	2025	15							1	13	32	31	13	4	4	2			100	21.3	19.0	1
021 (2E)	23	Juan Perez Sd	45	19/03/90	2207	16								6	29	36	19	7	3				100	21.5	19.0	0
025 (2E)	24	Huston Inlet	20	20/03/90	0735	17									9	31	26	13	13	8			100	22.6	19.0	0
021 (2E)	25	Burnaby Str	65	20/03/90	2105	18							2	13	29	33	16	4	3	1			101	21.3	19.0	2

TABLE 16 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN CLOUD". STAT AREA: 2E,2W, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
025 (2E)	26	Darwin Sd	50	21/03/90	1805					Water Haul																	
021 (2E)	27	Sedgwick Bay	40	21/03/90	2100	19								5	16	27	22	13	9	7	1			100	22.3	19.0	0
021 (2E)	28	Burnaby Str	50	22/03/90	0745	20							2	4	9	33	19	14	12	7				100	22.4	19.0	2
025 (2E)	29	Huston Inlet	27	23/03/90	0816					Water Haul																	
025 (2E)	30	Huston Inlet	20	23/03/90	0928	21								1	22	37	22	7	4	6	1			100	22.0	19.0	0
021 (2E)	31	Juan Perez Sd	55	23/03/90	2145	22							1	5	16	24	25	9	13	6	1			100	22.3	19.0	1
021 (2E)	32	Burnaby Str	26	23/03/90	0630	23							4	6	24	38	17	5	3	2				99	21.5	19.0	4
021 (2E)	33	Sedgwick Bay	45	24/03/90	2124	24								4	22	33	16	11	9	4	1			100	22.1	19.0	0
021 (2E)	34	Burnaby Str	35	25/03/90	1320					Water Haul																	
021 (2E)	35	Burnaby Str	33	25/03/90	1410	25							5	5	33	31	18	5	2	1				100	21.3	19.0	5
021 (2E)	36	Burnaby Str	25	25/03/90	1605	26							1	3	13	40	16	21	4	2				100	22.1	19.0	1
006 (2W)	37	Louscoone Inlet	55	26/03/90	0725	27								3	10	20	44	20	3					100	22.3	20.0	3
006 (2W)	38	Louscoone Inlet	60	27/03/90	1443					Water Haul																	
006 (2W)	39	Louscoone Inlet	30	27/03/90	2003	28								6	11	31	31	20	1					100	22.0	20.0	6
006 (2W)	40	Louscoone Inlet	40	28/03/90	0707	30								3	11	25	46	13	2					100	22.1	20.0	3
006 (2W)	41	Louscoone Inlet	30	28/03/90	1015	31								4	14	20	33	24	5					100	22.2	20.0	4
025 (2E)	42	Skincuttle Inlet	25	28/03/90	1615	32								1	17	42	14	11	9	6				100	22.2	19.0	0
		Charter Payment			Begin Pump	33								7	23	34	19	8	5	4				100	21.8	19.0	0
					Mid Pump	34								3	10	34	18	17	9	7	2			100	22.5	19.0	0
					End Pump	35								7	24	33	18	7	9	2				100	21.8	19.0	0
					DNA Sample	36																					
021 (2E)	43	Juan Perez Sd	30	31/03/90	1200	37								4	17	29	24	16	5	4	1			100	22.2	19.0	0
					DNA Sample	38																					
025 (2E)	44	Selwyn Inlet	50	01/04/90	1923	39						1	3	12	26	27	15	7	8	1				100	21.4	19.0	4
023 (2E)	45	Cumshewa Inlet	45	03/04/90	0857	40							1	6	18	30	14	16	13	2	2			102	22.2	19.0	1
024 (2E)	46	Selwyn Inlet		04/04/90	1155					Water Haul																	
024 (2E)	47	Selwyn Inlet		04/04/90	1235	41						1	6	28	33	19	7	4	2					100	20.6	19.0	7
024 (2E)	48	Selwyn Inlet	50	04/04/90	1400	42							5	15	35	17	12	15	1					100	21.2	19.0	5

TABLE 17. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS". STAT AREA:3,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
033 (03)	1	Port Simpson (Birnie I)	30	14/03/90	1250	4000	200	80	6.1	1	50	45	62	55	0.0	0.0	0	0	62	0	0	21.7
										2	43	37	73	63	0.0	0.0	1	0	72	0	0	
* 499 Herring Tagged										3	57	48	63	52	0.0	0.0	1	0	62	0	0	
										avg.	50	43	66	57	0.0	0.0	1	0	65			
033 (03)	2	Port Simpson (Birnie I)	30	15/03/90	0755	6500	1000	500	6.1	1	55	48	59	52	0.0	0.0	1	3	55	0	0	21.4
										2	56	52	51	48	0.0	0.0	2	3	46	0	0	
* 1000 Herring Tagged										3	61	54	51	46	0.0	0.0	0	3	48	0	0	
										avg.	57	51	54	49	0.0	0.0	1	3	50			
033 (03)	3	Port Simpson (Birnie I)	25	15/03/90	1115	6500	500	200	6.1	1	54	52	50	48	0.0	0.0	1	3	46	0	0	21.5
										2	67	62	41	38	0.0	0.0	1	3	37	0	0	
* 999 Herring Tagged										3	63	52	58	48	0.0	0.0	3	4	51	0	0	
										avg.	61	55	50	45	0.0	0.0	2	3	45			
033 (03)	4	Port Simpson (Birnie I)		17/03/90	1005	6500	300	200	6.4	1	47	45	58	55	2.5	2.3	15	10	33	0	0	21.7
										2	64	60	43	40	1.0	1.3	4	5	34	0	0	
* 499 Herring Tagged										3	51	50	52	50	2.0	2.0	10	8	34	0	0	
										avg.	54	52	51	48	1.8	1.8	10	8	34			
052 (05)	5	Kitkatla Inlet (Absalom I)	27	19/03/90	0800	600	250	200	6.2	1	54	53	47	47	2.0	2.1	9	13	25	0	0	21.3
										2	51	50	50	50	1.5	1.5	10	10	30	0	1	
* 999 Herring Tagged										3	51	52	48	48	3.2	3.3	14	6	28	0	1	
										avg.	52	52	48	48	2.2	2.3	11	10	28			
052 (05)	6	Kitkatla Inlet (Willis Bay)	40	19/03/90	1335	2500	200	0	6.4	W a t e r H a u l												
052 (05)	7	Kitkatla Inlet (Willis Bay)	25	19/03/90	1830	2500	1000	300	6.5	1	45	45	56	55	1.5	1.4	8	12	36	0	0	20.8
										2	50	50	51	50	2.2	2.2	11	8	32	0	0	
* 500 Herring Tagged										3	55	55	45	45	2.0	2.2	8	7	30	0	0	
										4	57	58	42	42	1.5	1.8	9	5	28	0	0	
										avg.	52	52	49	48	1.8	1.9	9	8	32			
052 (05)	8	Kitkatla Inlet (Top Gurd I)	30	20/03/90	1107	600	150	0	6.4	W a t e r H a u l												
052 (05)	9	Kitkatla Inlet (W Gurd I)	25	21/03/90	0845	600	120	70	6.7	1	67	50	67	50	4.0	4.0	21	7	39	1	0	20.8
										2	55	44	70	56	3.0	2.7	15	14	41	3	0	
* 999 Herring Tagged										3	62	53	54	47	2.0	2.1	11	14	29	1	0	
										avg.	61	49	64	51	3.0	2.9	16	12	36			

TABLE 17 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS". STAT AREA: 3,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
052 (05)	10	Kitkatla Inlet (Willis Bay)	34	21/03/90	1355	3500	400	50	6.9	1	51	41	74	59	2.0	1.7	10	11	53	0	0	20.8
										2	70	56	54	44	1.0	1.1	9	9	36	0	0	
* 999 Herring Tagged										3	63	50	64	50	2.0	2.0	9	11	44	0	0	
										avg.	61	49	64	51	1.7	1.6	9	10	44			
052 (05)	11	Kitkatla Inlet (Willis Bay)	15	22/03/90	0800	3500	300	200	6.5	1	56	48	60	52	3.0	2.9	16	15	29	0	0	21.1
										2	49	45	61	55	6.0	5.5	28	9	24	0	0	
* 498 Herring Tagged										3	47	42	66	58	4.0	3.4	22	10	34	0	0	
										avg.	51	45	62	55	4.3	3.9	22	11	29			
052 (05)	12	Kitkatla Inlet (Off Gurd Inlet)	25	22/03/90	1050		100	0		W a t e r H a u l												
052 (05)	13	Kitkatla Inlet (Off Gurd Inlet)	25	23/03/90	0610	600	200	70	6.4	1	61	49	63	51	8.0	7.8	35	10	18	1	0	21.0
										2	64	52	58	48	9.0	9.4	44	2	12	0	0	
* 998 Herring Tagged										3	67	53	59	47	8.0	8.5	39	8	12	0	0	
										avg.	64	51	60	49	8.3	8.6	39	7	14			
052 (05)	14	Kitkatla Inlet (Willis Bay)	30	24/03/90	1415	3500	200	30	6.6	1	61	53	55	47	4.0	4.3	19	13	23	0	0	21.0
										2	59	52	55	48	3.0	3.1	16	6	33	0	0	
										3	58	46	68	54	5.0	4.6	28	7	33	0	0	
										avg.	59	50	59	50	4.0	4.0	21	9	30			
052 (05)	15	Kitkatla Inlet (Off Gurd Inlet)	30	25/03/90	0730	700	150	150	6.5	1	57	50	57	50	12.0	12.0	46	3	8	0	0	21.1
										2	59	54	50	46	8.0	8.7	36	8	6	0	0	
										3	59	54	51	46	9.0	9.8	38	5	8	0	0	
										4	75	61	47	39	6.0	7.7	31	6	10	0	0	
										5	59	50	59.	50	8.0	8.0	41	7	11	0	0	
										avg.	62	54	53	46	8.6	9.2	38	6	9			
052 (05)	16	Kitkatla Inlet (Porcher Pen opposite Robert I)	20	26/03/90	0930	500	300	100	6.5	1	70	56	55	44	6.0	6.8	30	9	16	0	0	21.2
										2	58	52	54	48	9.0	9.4	35	5	14	0	0	
										3	65	58	48	42	7.0	8.3	37	4	7	0	0	
										4	51	42	71	58	10.0	8.6	51	7	13	0	0	
										5	77	59	54	41	7.0	8.5	34	7	13	0	0	
										avg.	64	53	56	47	7.8	8.3	37	6	13			
052 (05)	17	Kitkatla Inlet (West)	30	26/03/90	1100	500	100	10	6.5	1	74	62	45	38	7.0	9.2	31	3	11	0	0	21.0
										2	65	54	55	46	7.0	7.6	36	6	13	0	0	
										3	75	63	45	37	6.0	8.1	31	5	9	0	0	
										avg.	71	60	48	40	6.7	8.3	33	5	11			

TABLE 17 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS". STAT AREA: 3,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
052 (05)	18	Kitkatla Inlet (Willis Bay)	35	26/03/90	1315	2500	500	350	6.7	1	57	48	61	52	7.0	6.7	31	8	22	0	0	21.1
										2	49	43	64	57	8.0	7.0	37	5	22	0	0	
										3	54	46	63	54	7.0	6.5	30	4	29	0	0	
										4	76	61	49	39	5.0	6.4	22	7	20	0	0	
										avg.	59	50	59	51	6.8	6.7	30	6	23			
052 (05)	19	Kitkatla Inlet (Willis Bay)	25	27/03/90	0730	4000	1000	400	6.7	1	68	55	56	45	5.0	5.6	24	13	19	0	0	21.1
										2	45	38	74	62	7.0	5.6	31	12	31	0	0	
										3	45	38	72	62	8.0	6.5	36	14	22	0	0	
										4	70	54	59	46	5.0	5.4	28	6	25	0	0	
										avg.	57	46	65	54	6.3	5.8	30	11	24			
052 (05)	20	Kitkatla Inlet (Wilcox Group)	15	28/03/90	1800	80	80	10	6.9	1	59	56	47	44	10.0	11.4	39	4	4	0	0	21.6
										2	60	57	45	43	10.0	11.6	42	1	2	0	0	
										3	59	55	49	45	11.0	12.2	43	4	2	0	0	
										4	65	52	61	48	14.0	14.6	55	5	1	0	0	
										5	61	53	55	47	12.0	12.8	50	2	3	0	0	
										avg.	61	55	51	45	11.4	12.5	46	3	2			
052 (05)	21	Kitkatla Inlet (Willis Bay)	27	29/03/90	1010	2000	300	60	6.7	1	59	46	68	54	7.0	6.5	31	12	25	0	0	20.6
										2	59	48	65	52	6.0	5.8	28	12	25	0	0	
										3	65	55	53	45	7.0	7.8	28	9	16	0	0	
										4	62	50	62	50	7.0	7.0	31	9	22	0	0	
										avg.	61	50	62	50	6.8	6.8	30	11	22			
052 (05)	22	Kitkatla Inlet (Willis Bay)	30	29/03/90	1200	2000	500	200	6.8	1	65	51	62	49	4.0	4.1	21	12	29	0	0	21.0
										2	63	51	61	49	6.0	6.1	29	14	18	1	0	
										3	65	57	50	43	5.0	5.8	26	4	20	0	0	
										4	64	52	58	48	7.0	7.3	31	3	24	0	0	
										avg.	64	53	58	47	5.5	5.8	27	8	23			
052 (05)	23	Kitkatla Inlet (NW Absalom I)	12	29/03/90	1620	1500	120	80	6.5	1	53	49	55	51	8.0	7.8	38	12	5	0	0	21.2
										2	60	48	65	52	10.0	9.6	44	11	10	0	0	
										3	54	43	71	57	10.0	8.8	47	10	14	0	0	
										4	71	57	54	43	9.0	10.5	42	7	5	0	0	
										5	60	47	67	53	11.0	10.4	48	8	11	0	0	
										avg.	60	49	62	51	9.6	9.4	44	10	9			
052 (05)	24	Kitkatla Inlet (Off Gurd Inlet)	30	30/03/90	0950	450	70	10	7.0	1	66	61	43	39	10.0	12.8	37	4	2	0	0	21.8
										2	55	51	52	49	9.0	9.2	38	6	8	0	0	
										3	48	46	57	54	13.0	12.0	48	6	3	0	0	
										avg.	56	53	51	47	10.7	11.3	41	5	4			

TABLE 17 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS". STAT AREA: 3,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
052 (05)	25	Kitkatla Inlet (Gurd Pt)	14	30/03/90	1300	2000	500	200	6.9	1	68	55	55	45	12.0	13.3	53	0	2	0	0	21.0
										2	61	50	62	50	12.0	12.0	54	3	5	0	0	
										3	65	49	68	51	13.0	12.7	59	6	3	0	0	
										4	81	61	52	39	10.0	12.8	47	4	1	0	0	
										avg.	69	54	59	46	11.8	12.7	53	3	3			
052 (05)	26	Kitkatla Inlet (Gurd Pt)	15	31/03/90	0630	2000	100	2	6.8	1	59	55	49	45	13.0	14.4	46	3	0	1	0	21.3
		Small Catch Sample may not be Representative								2	58	56	46	44	9.0	10.2	38	3	5	0	0	
										3	61	52	57	48	10.0	10.4	42	13	2	0	0	
										4	49	51	47	49	9.0	9.2	37	7	3	0	0	
										avg.	57	54	50	47	10.3	11.1	41	7	3			
052 (05)	27	Kitkatla Inlet (Gurd Pt)	15	31/03/90	0845	2000	80	50	6.8	1	50	42	68	58	14.0	12.1	60	3	5	0	0	21.0
										2	57	49	60	51	13.0	12.7	51	7	2	0	0	
										3	59	50	59	50	11.0	11.0	48	4	7	0	0	
										4	71	57	53	43	10.0	11.6	44	1	8	0	0	
										avg.	59	50	60	51	12.0	11.9	51	4	6			
052 (05)	28	Kitkatla Inlet (Gurd Pt)	15	01/04/90	0830	300	80	20	6.8	1	50	50	50	50	11.0	11.0	42	5	3	1	0	22.3
										2	48	48	52	52	11.0	10.6	41	6	5	0	0	
										3	53	58	39	42	9.0	10.7	33	4	2	1	0	
										4	50	52	46	48	11.0	11.5	39	3	4	1	0	
										avg.	50	52	47	48	10.5	10.9	39	5	4			
052 (05)	29	Kitkatla Inlet (S Gurd Pt)	20	01/04/90	1047	300	200	20	6.8	1	73	60	49	40	9.0	11.3	44	1	4	0	0	20.8
										2	65	52	60	48	12.0	12.5	51	4	5	0	0	
										3	61	52	57	48	12.0	12.5	52	4	1	0	0	
										4	67	54	56	46	10.0	10.9	47	4	5	0	0	
										avg.	67	55	56	46	10.8	11.8	49	3	4			
052 (05)	30	Kitkatla Inlet (Snass I)	18	02/04/90	0900	350	100	70	6.7	1	55	47	63	53	14.0	13.2	60	1	2	0	0	21.0
										2	62	53	55	47	13.0	13.8	53	1	1	0	0	
										3	62	54	52	46	12.0	13.0	50	0	2	0	0	
										4	58	50	59	50	13.0	13.0	58	0	1	0	0	
										avg.	59	51	57	49	13.0	13.3	55	1	2			
052 (05)	31	Kitkatla Inlet (Kitkatla Cr)	18	02/04/90	1700		200	5	6.8	1	54	52	49	48	12.0	12.5	47	1	1	0	0	21.9
		Sample is not Representative								2	59	54	51	46	13.0	14.1	50	0	1	0	0	
										3	50	45	60	55	15.0	13.6	60	0	0	0	0	
										avg.	54	50	53	50	13.3	13.4	52	0	1			
052 (05)	32	Kitkatla Inlet (Kitkatla Cr)	24	02/04/90	1820		100	0	6.8	W a t e r N a u l												

TABLE 17 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VENTUROUS". STAT AREA: 3,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
052 (05)	33	Kitkatla Inlet (Snass I)	18	03/04/90	0600	1200	150	150	6.8	1	51	44	64	56	14.0	12.5	62	0	2	0	0	21.1
										2	49	40	72	60	15.0	12.5	71	0	1	0	0	
										3	63	54	53	46	12.0	13.0	51	2	0	0	0	
										4	59	47	66	53	14.0	13.2	66	0	0	0	0	
										5	72	56	57	44	12.0	13.6	57	0	0	0	0	
										avg.	59	48	62	52	13.4	13.0	61	0	1			
052 (05)	34	Kitkatla Inlet (Snass Pt)	17	05/04/90	0640	Charter Payment	200	35	6.8	1	48	47	55	53	12.0	11.3	54	0	1	0	0	20.9
										2	55	47	63	53	14.0	13.2	63	0	0	0	0	
										3	47	43	63	57	15.0	13.2	63	0	0	0	0	21.1
										4	59	49	61	51	14.0	13.7	59	2	0	0	0	
										5	55	50	56	50	13.0	13.0	51	4	1	0	0	
										6	76	63	44	37	9.0	12.2	44	0	0	0	0	
										avg.	57	50	57	50	12.8	12.8	56	1	0			
052 (05)	35	Kitkatla Inlet (Absalom I)	30	05/04/90	0940		50	50	6.8	1	50	48	55	52	11.0	10.6	49	1	5	1	1	21.0
052 (05)	36	Kitkatla Inlet (Robert I)		05/04/90	1105		80			W a t e r H a u l												
052 (05)	37	Kitkatla Inlet (Outside Snass I)	10	05/04/90	1350	Charter Payment	100	45	6.7	1	46	45	56	55	12.0	10.9	55	0	1	0	0	20.8
										2	56	47	63	53	14.0	13.2	62	1	0	0	0	
										avg.	51	46	60	54	13.0	12.1	59	1	1			
052 (05)	38	Kitkatla Inlet (Theresa R)	12	05/04/90	1855		50			W a t e r H a u l												
052 (05)	39	Kitkatla Inlet (Outside Snass I)	12	06/04/90	0740		50			W a t e r H a u l												
052 (05)	40	Kitkatla Inlet (Absalom I)	28	06/04/90	1120	Charter Payment		40	6.8	1	46	47	52	53	10.0	9.4	44	6	2	0	0	21.0
										2	45	42	63	58	13.0	11.2	55	7	1	0	0	
										avg.	46	45	58	56	11.5	10.3	50	7	2			

TABLE 18. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "VENTUROUS". STAT AREA:3,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
033 (03)	1	Port Simpson	30	14/03/90	1250	1								5	22	36	24	10	1				98	21.7	18.5	0
033 (03)	2	Port Simpson	30	15/03/90	0755	2							2	9	22	43	17	7	1				101	21.4	18.5	0
033 (03)	3	Port Simpson	25	15/03/90	1115	3							2	4	32	31	27	6	4				106	21.5	18.5	2
033 (03)	4	Port Simpson		17/03/90	1005	4								10	16	31	27	11	2	1			98	21.7	18.5	0
052 (05)	5	Kitkatla Inlet	27	19/03/90	0800	5							6	13	34	32	21	5	5	1			117	21.3	18.5	2
052 (05)	6	Kitkatla Inlet	40	19/03/90	1335		W a t e r			H a u l																
052 (05)	7	Kitkatla Inlet	25	19/03/90	1830	6							11	27	42	23	19	5	0	1			128	20.8	18.5	6
052 (05)	8	Kitkatla Inlet	30	20/03/90	1107		W a t e r			H a u l																
052 (05)	9	Kitkatla Inlet	25	21/03/90	0845	7						1	6	15	35	27	12	3	1				100	20.8	18.5	3
052 (05)	10	Kitkatla Inlet	34	21/03/90	1355	8						1	8	18	37	17	9	7	3				100	20.8	18.5	3
052 (05)	11	Kitkatla Inlet	15	22/03/90	0800	9						1	4	19	18	36	14	7	1				100	21.1	18.5	1
052 (05)	12	Kitkatla Inlet	25	22/03/90	1050		W a t e r			H a u l																
052 (05)	13	Kitkatla Inlet	25	23/03/90	0610	10		1	1	4	3	16	26	24	15	7	2	1					100	21.0	18.5	6
052 (05)	14	Kitkatla Inlet	30	24/03/90	1415	11				1	2	9	16	18	33	12	10	2					103	21.0	18.5	4
052 (05)	15	Kitkatla Inlet	30	25/03/90	0730	12					1	6	12	28	26	20	4	1	1				99	21.1	18.5	2
052 (05)	16	Kitkatla Inlet	20	26/03/90	0930	13				1	1	5	11	29	28	11	12	2					100	21.2	18.5	4
052 (05)	17	Kitkatla Inlet	30	26/03/90	1100	14		1	0	3	4	14	30	26	14	6	3						101	21.0	18.5	4
052 (05)	18	Kitkatla Inlet	35	26/03/90	1315	15							6	16	25	30	18	5	1	1			102	21.1	18.5	1
052 (05)	19	Kitkatla Inlet	25	27/03/90	0730	16				1	1	3	14	36	22	15	6	2	1				101	21.1	18.5	2
052 (05)	20	Kitkatla Inlet	15	28/03/90	1800	17							1	8	28	31	18	6	8				100	21.6	18.5	0
052 (05)	21	Kitkatla Inlet	27	29/03/90	1010	18		1	1	2	10	27	22	19	9	8	2	1					102	20.6	18.5	8
052 (05)	22	Kitkatla Inlet	30	29/03/90	1200	19				2	3	4	13	33	19	15	9	2					100	21.0	18.5	8
052 (05)	23	Kitkatla Inlet	20	29/03/90	1620	20						2	2	16	25	26	20	6	4				101	21.2	18.5	2
052 (05)	24	Kitkatla Inlet	30	30/03/90	0950	21						1	0	5	20	36	16	13	7	1			99	21.8	18.5	1
052 (05)	25	Kitkatla Inlet	14	30/03/90	1300	22						3	7	16	24	21	20	9					100	21.0	18.5	5

TABLE 18 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "VENTUROUS". STAT AREA: 3,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
052 (05)	26	Kitkatla Inlet	15	26/03/90	0630	23					1	2	6	12	18	27	23	8	3				100	21.3	18.5	4
052 (05)	27	Kitkatla Inlet	15	27/03/90	0845	24					1	1	8	15	31	19	15	8	3				101	21.0	18.5	4
052 (05)	28	Kitkatla Inlet	15	28/03/90	0830	25							2	2	9	37	22	14	14	1			101	22.3	18.5	0
052 (05)	29	Kitkatla Inlet	20	29/03/90	1047	26				1	6	2	8	12	16	29	17	6	2				99	20.8	18.5	11
052 (05)	30	Kitkatla Inlet	18	30/03/90	0900	27					1	2	6	11	28	31	14	6	1				100	21.0	18.5	4
052 (05)	31	Kitkatla Inlet	18	31/03/90	1700	28							2	9	16	29	23	13	7	2			101	21.9	18.5	1
052 (05)	32	Kitkatla Inlet	24	02/04/90	1820				Water Haul																	
052 (05)	33	Kitkatla Inlet	18	03/04/90	0600	29					1	0	5	18	23	30	12	11					100	21.1	18.5	1
052 (05)	34	Kitkatla Inlet	17	05/04/90	0640	30						3	7	22	26	25	16	8	3				110	20.9	18.5	4
											1	1	2	21	22	28	21	3	0	1			100	21.0	18.5	2
052 (05)	35	Kitkatla Inlet	30	05/04/90	0940	31	1	0	2	2	4	14	26	25	12	9	2	0	1				98	21.0	18.5	6
052 (05)	36	Kitkatla Inlet		05/04/90	1105				Water Haul																	
052 (05)	37	Kitkatla Inlet	10	05/04/90	1350	32						2	9	14	23	25	13	4	1				91	20.8	18.5	3
052 (05)	38	Kitkatla Inlet	12	05/04/90	1855				Water Haul																	
052 (05)	39	Kitkatla Inlet	12	06/04/90	0740				Water Haul																	
052 (05)	40	Kitkatla Inlet	28	06/04/90	1120	33					1	0	5	14	32	25	12	5	2				96	21.0	18.5	1

TABLE 19. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN ROYAL". STAT AREA:3,4,5, 1990.

Section (Area)	Set No.	Location	Depth D /M /Y Time (fm)	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Sprnd Out	Juv or Imm	Avg. Length (cm)
042 (04)	1	Redcliffe Pt	18 20/03/90 0935	1000	1000	2		Net Damaged - Catch Not Representative												
042 (04)	2	Pearl Harbour	14 21/03/90 0815	1000	200	1	6.5	1	44	46	52	54	2.5	2.3	17	11	24	0	0	21.6
				Sample is Not Representative				2	46	43	60	57	4.0	3.5	30	4	26	0	0	
								3	60	58	43	42	3.0	3.6	18	10	15	0	0	
								avg.	50	49	52	51	3.2	3.1	22	8	22			
042 (04)	3	Pearl Harbour	17 21/03/90 0940	3000	1500	1500	6.5	1	58	56	46	44	4.0	4.5	21	13	12	0	0	21.8
* 997 Herring Tagged								2	63	63	37	37	3.0	4.1	18	7	12	0	0	
								3	58	53	51	47	5.0	5.3	25	10	16	0	0	
								avg.	60	57	45	43	4.0	4.6	21	10	13			
033 (03)	4	Port Simpson (Grassy Pt)	18 22/03/90 0615	500-1000	300	25	6.3	1	65	66	34	34	1.0	1.5	6	7	21	0	0	21.7
* 497 Herring Tagged								2	66	62	41	38	2.5	3.3	12	3	26	0	0	
								3	66	63	39	37	3.0	4.1	15	1	23	0	0	
								4	55	50	54	50	3.5	3.5	20	8	26	0	0	
								avg.	63	60	42	40	2.5	3.1	13	5	24			
042 (04)	5	Pearl Harbour	13 23/03/90 1530	4000	35	10	6.5	1	57	55	46	45	5.5	6.1	28	6	12	0	0	21.5
								2	55	52	50	48	4.5	4.7	27	3	20	0	0	
								3	54	54	46	46	4.5	4.9	23	5	18	0	0	
								avg.	55	54	47	46	4.8	5.2	26	5	17			
042 (04)	6	Big Bay (Shattock Pt)	8 24/03/90 1135		200-300	200		1	55	51	53	49	8.0	8.2	37	11	5	0	0	21.6
								2	49	45	61	55	9.0	8.2	41	14	6	0	0	
								3	51	50	52	50	9.0	9.0	39	11	2	0	0	
								4	60	53	54	47	8.0	8.5	37	9	8	0	0	
								avg.	54	50	55	50	8.5	8.5	39	11	5			
033 (03)	7	Port Simpson (1mi E Birnie I)	28 24/03/90 1455	500	200	200	6.3	1	52	49	54	51	4.0	3.9	20	9	25	0	0	21.3
								2	50	48	54	52	6.0	5.8	27	6	21	0	0	
								3	72	61	47	39	5.5	7.1	23	7	17	0	2	
								4	68	55	56	45	6.0	6.7	29	5	22	0	1	
								avg.	61	53	53	47	5.4	5.9	25	7	21			
042 (04)	8	Pearl Harbour (E Mist I)	17 25/03/90 0700	500-1000	150	25	6.3	1	52	44	66	56	3.0	2.7	17	5	44	0	0	20.8
								2	52	46	61	54	3.5	3.2	17	10	34	0	0	
								3	52	46	62	54	3.0	2.8	15	7	40	0	0	
								avg.	52	45	63	55	3.2	2.9	16	7	39			

TABLE 19 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN ROYAL". STAT AREA: 3,4,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /N /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
042 (04)	9	Big Bay (NE Simpson Pt)	12	25/03/90	0955	2000	400-500	75	6.5	1	62	57	47	43	8.0	9.3	36	3	8	0	0	21.4
										2	54	47	61	53	10.0	9.4	47	7	7	0	0	
										3	61	52	56	48	11.0	11.5	43	10	3	0	0	
										4	56	50	56	50	8.5	8.5	41	9	6	0	0	
										avg.	58	52	55	49	9.4	9.7	42	7	6			
042 (04)	10	Pearl Harbour	8	26/03/90	0630	1000	100	100	6.5	1	50	43	66	57	10.0	8.8	47	7	12	0	0	21.2
										2	53	48	58	52	9.0	8.7	41	4	13	0	0	
										3	69	45	84	55	8.5	7.7	37	7	40	0	0	
										4	55	44	70	56	9.0	8.0	43	7	20	0	0	
										avg.	57	45	70	55	9.1	8.3	42	6	21			
033 (03)	11	Port Simpson (Grassy Pt)	29	26/03/90	1340	300-400	40	40	7.0	1	71	48	77	52	0.5	0.5	4	8	65	0	12	19.9
										2	50	34	95	66	1.0	0.8	7	11	77	0	17	
										3	59	42	80	58	0.2	0.2	4	4	72	0	17	
* 498 Herring Tagged										avg.	60	41	84	59	0.6	0.5	5	8	71			
042 (04)	12	Big Bay (N side of Whitecliff I)	7	27/03/90	0720		30	10		1	55	47	61	53	9.0	8.5	48	4	9	7	1	21.0
										2	77	68	37	32	9.0	14.1	31	2	4	11	2	
										3	56	48	61	52	8.0	7.7	47	7	7	12	1	
										avg.	63	54	53	46	8.7	10.1	42	4	7			
042 (04)	13	Hunt Inlet	19	29/03/90	1238	1000	200	50		1	50	43	65	57	11.5	10.1	55	7	3	0	0	20.9
										2	58	52	53	48	9.5	9.9	48	4	1	0	0	
										3	42	35	79	65	12.0	9.2	60	9	10	0	0	
										avg.	50	43	66	57	11.0	9.7	54	7	5			
043 (04)	14	Hunt Inlet	25	30/03/90	0620	1000	150	75		1	65	50	64	50	10.5	10.5	56	3	5	0	0	20.8
										2	65	46	75	54	11.5	10.6	61	9	5	0	0	
										3	62	47	71	53	12.5	11.8	62	7	2	0	0	
										4	56	45	69	55	11.5	10.5	61	4	4	0	0	
										avg.	62	47	70	53	11.5	10.8	60	6	4			
052 (05)	15	Kitkatla Inlet (Near Gurd Inlet)	26	31/03/90	0755	200-300	20	10		1	52	46	61	54	9.0	8.3	40	7	14	0	0	21.1
										2	62	53	54	47	8.0	8.5	41	9	4	0	0	
										3	59	47	67	53	8.5	8.0	42	7	18	0	0	
										avg.	58	49	61	51	8.5	8.3	41	8	12			
052 (05)	16	Kitkatla Inlet (Mouth of Gurd Inlet)	24	31/03/90	0920	300	75	25		1	54	48	58	52	9.0	8.7	46	6	6	0	0	21.0
										2	52	50	51	50	9.0	9.0	37	8	6	0	0	
										3	68	51	66	49	7.5	7.7	39	9	18	0	0	
										avg.	58	50	58	50	8.5	8.4	41	8	10			

TABLE 19 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN ROYAL". STAT AREA: 3,4,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
052 (05)	17	Kitkatla Inlet (W of Roberts I)	25	01/04/90	0725		75	30		1	54	47	60	53	9.5	9.0	47	6	7	0	0	21.1
										2	56	50	57	50	9.5	9.5	46	6	5	0	0	
										3	59	50	59	50	8.0	8.0	42	6	11	0	0	
										avg.	56	49	59	51	9.0	8.8	45	6	8			
052 (05)	18	Kitkatla Inlet (Opp. Gurd Inlet)	21	02/04/90	0820	500	100	50		1	54	50	54	50	10.7	10.7	50	1	3	0	0	21.0
										2	47	41	68	59	11.7	9.9	60	2	6	0	0	
										3	57	46	68	54	11.5	10.6	57	4	7	0	0	
										4	62	51	60	49	10.0	10.2	50	3	7	0	0	
										avg.	55	47	63	53	11.0	10.4	54	3	6			
052 (05)	19	Kitkatla Inlet (Wilcox Group)	15	02/04/90	1530	75	25	0		W a t e r H a u l												
052 (05)	20	Kitkatla Inlet (Btwn Camp Cr and Kitkatla Cr)	18	02/04/90	1655	600	300	75		1	62	58	45	42	8.0	9.5	39	3	3	0	0	21.1
										2	57	49	60	51	13.0	12.7	58	2	0	0	0	
										3	64	55	52	45	11.7	13.0	51	0	1	0	0	
										4	58	52	54	48	13.0	13.5	52	2	0	0	0	
										avg.	60	54	53	47	11.4	12.2	50	2	1			
052 (05)	21	Kitkatla Inlet (Snass Pt)	22	02/04/90	1810	600	100	25		1	55	50	56	50	11.0	11.0	56	0	0	0	0	20.9
										2	55	44	69	56	14.0	12.5	66	2	1	0	0	
										3	56	46	67	54	14.0	13.0	65	2	0	0	0	
										4	55	50	54	50	12.7	12.7	53	1	0	0	0	
										avg.	55	48	62	53	12.9	12.3	60	1	0			
052 (05)	22	Kitkatla Inlet (Kitkatla Cr)	16	03/04/90	0625	200	25	10		1	48	41	69	59	14.0	11.9	67	0	2	0	0	20.8
										2	53	44	67	56	14.0	12.5	67	0	0	0	0	
										3	55	45	67	55	13.2	12.0	62	3	2	0	0	
										4	59	48	65	52	12.7	12.2	60	2	3	0	0	
										avg.	54	45	67	56	13.5	12.1	64	1	2			
052 (05)	23	Kitkatla Inlet (Snass Pt)	18	04/04/90	0535	150	100	20		1	57	50	56	50	11.0	11.0	55	0	1	0	0	21.0
										2	59	53	53	47	12.0	12.8	53	0	0	0	0	
										3	54	49	56	51	11.0	10.8	54	1	1	0	0	
										avg.	57	51	55	49	11.3	11.5	54	0	1			
052 (05)	24	Kitkatla Inlet (Phoenix I)	12	05/04/90	0415	100	30	0		W a t e r H a u l												
052 (05)	25	Kitkatla Inlet (Phoenix I)	15	05/04/90	0555	400 Charter	75 Payment	50		1	59	52	54	48	10.0	10.4	53	0	1	0	1	20.9
										2	50	46	59	54	12.0	11.1	57	1	1	0	0	
										avg.	55	49	57	51	11.0	10.8	55	1	1			

TABLE 19 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN ROYAL". STAT AREA: 3,4,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
052 (05)	26	Kitkatla Inlet (Gravel Pit)	21	05/04/90	1020	100	35	20		1	64	45	78	55	12.0	10.9	72	3	3	0	2	
										2	62	50	63	50	7.5	7.5	52	4	7	0	0	
										avg.	63	48	71	53	9.8	9.2	62	4	5			
052 (05)	27	Kitkatla Inlet (Kitkatla Cr)	20	05/04/90	1205	Charter Payment	40	15		1	62	51	60	49	10.5	10.7	55	3	2	0	0	20.8
										2	45	43	60	57	11.0	9.6	52	4	4	0	0	
										3	69	53	61	47	13.0	13.8	61	0	0	0	0	
										avg.	59	49	60	51	11.5	11.4	56	2	2			
052 (05)	28	Snass Island (Phoenix I)	12	05/04/90	1745	75	30	0		Water Haul												
052 (05)	29	Kitkatla Inlet (Phoenix I)	18	06/04/90	0545	Charter Payment	45	35		1	50	49	53	51	10.5	10.3	52	0	1	0	2	20.3
										2	60	49	63	51	10.5	10.3	57	2	4	0	0	
										avg.	55	49	58	51	10.5	10.3	55	1	3			
043 (04)		Pearl Harbour		27/03/90	1600	Spawn On Kelp Pond (Misty Horn)				1	12	39	19	61	0.0	0.0	1	0	18	90	4	
										2	12	41	17	59	0.0	0.0	0	7	10	99	2	
										avg.	12	40	18	60	0.0	0.0	1	4	14			
043 (04)		Hunt Inlet		29/03/90	1000	Spawn On Kelp Pond (Misty Horn)				1	62	51	60	49	10.5	10.7	55	3	2	0	0	20.8
										2	45	43	60	57	11.0	9.6	52	4	4	0	0	
										3	69	53	61	47	13.0	13.8	61	0	0	0	0	
										avg.	59	49	60	51	11.5	11.4	56	2	2			
043 (04)		Hunt Inlet		30/03/90		Spawn On Kelp Pond (Misty Horn)				1	52	45	64	55	11.5	10.5	57	3	4	0	0	20.8
										2	58	51	56	49	11.5	11.7	52	2	2	0	0	
										3	53	50	52	50	10.0	10.0	45	3	4	0	0	
										avg.	54	49	57	51	11.0	10.7	51	3	3			

TABLE 20. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN ROYAL". STAT AREA: 3,4,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
042 (04)	1	Redcliffe Pt	18	20/03/90	0935		Water Haul																			
042 (04)	2	Pearl Harbour	14	21/03/90	0815	1						1	11	14	35	24	10	1					96	21.6	18.5	1
042 (04)	3	Pearl Harbour	17	21/03/90	0940	2						1	5	20	31	27	13	3					100	21.8	18.5	1
033 (03)	4	Port Simpson	18	22/03/90	0615	3						4	14	18	18	22	20	3	1				100	21.7	18.5	0
042 (04)	5	Pearl Harbour	13	23/03/90	1530	4					1	0	11	24	28	23	10	1	2				100	21.5	18.5	0
042 (04)	6	Big Bay	8	24/03/90	1135	5						5	8	19	31	23	9	3	2				100	21.6	18.5	2
033 (03)	7	Port Simpson	28	24/03/90	1455	6						8	13	18	31	18	8	2	1				99	21.3	18.5	3
042 (04)	8	Pearl Harbour	17	25/03/90	0700	7						5	25	28	25	14	3	2					102	20.8	18.5	2
042 (04)	9	Big Bay	12	25/03/90	0955	8					2	4	12	20	24	27	12	2					103	21.4	18.5	3
042 (04)	10	Pearl Harbour	8	26/03/90	0630	9					2	1	16	19	35	17	8	1					99	21.2	18.5	2
033 (03)	11	Port Simpson	29	26/03/90	1340	10	1	1	1	5	22	26	17	15	9	3							100	19.9	18.5	14
042 (04)	12	Big Bay	7	27/03/90	0720	11					1	4	21	24	23	20	6	1					100	21.0	18.5	3
043 (04)	13	Hunt Inlet	19	29/03/90	1238	12					3	8	17	25	24	17	2	4					100	20.9	18.5	4
043 (04)	14	Hunt Inlet	25	30/03/90	0620	13				1	0	4	24	27	27	10	7						100	20.8	18.5	2
052 (05)	15	Kitkatla Inlet	26	31/03/90	0755	14				1	5	9	10	19	23	21	8	2	1				99	21.1	18.5	9
052 (05)	16	Kitkatla Inlet	24	31/03/90	0920	15					1	6	17	35	18	13	5	4	0	0	1		100	21.0	18.5	4
052 (05)	17	Kitkatla Inlet	25	01/04/90	0725	16					1	6	18	22	30	10	7	4	1				99	21.1	18.5	1
052 (05)	18	Kitkatla Inlet	21	02/04/90	0820	17				1	3	7	13	29	29	15	5	4	1				107	21.0	18.5	5
052 (05)	19	Kitkatla Inlet	15	02/04/90	1530		Water Haul																			
052 (05)	20	Kitkatla Inlet	18	02/04/90	1655	18						2	4	16	26	23	15	12					98	21.1	18.5	4
052 (05)	21	Kitkatla Inlet	22	02/04/90	1810	19						2	4	16	35	26	8	7	0	1	1		100	20.9	18.5	2
052 (05)	22	Kitkatla Inlet	16	03/04/90	0625	20		1	2	2	7	21	18	29	15	6	2	1					104	20.8	18.5	6
052 (05)	23	Kitkatla Inlet	18	04/04/90	0535	21					2	5	26	21	31	9	8	6					108	21.0	18.5	5
052 (05)	24	Kitkatla Inlet	12	05/04/90	0415		Water Haul																			
052 (05)	25	Kitkatla Inlet	15	05/04/90	0555	22				2	0	6	21	24	26	9	7	5					100	20.9	18.5	4

TABLE 20 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN ROYAL". STAT AREA: 3,4,5, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
052 (05)	26	Kitkatla Inlet	21	05/04/90	1020	23	No Sample Retained - Fish mixed																			
052 (05)	27	Kitkatla Inlet	20	05/04/90	1205	24					2	0	7	20	25	24	13	4	3				98	20.8	18.5	4
052 (05)	28	Snass Island	12	05/04/90	1745		Water Haul																			
052 (05)	29	Kitkatla Inlet	18	06/04/90	0545	26			1	4	4	13	33	27	25	12	6	1					126	20.3	18.5	13
043 (04)		Pearl Harbour		27/03/90	1600	Spawn on Kelp Pond (Misty Horn)																				
043 (04)		Hunt Inlet		29/03/90	1000	Spawn on Kelp Pond (Misty Horn)							10	19	31	21	9	5	2	1			98	20.8	18.5	2
043 (04)		Hunt Inlet		29/03/90	1000	Spawn on Kelp Pond (Misty Horn)						1	9	14	30	29	9	6	2				100	20.9	18.5	5

TABLE 21. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTERN PRINCESS". STAT AREA: 6,7, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
073 (07)	1	Song I	50	01/03/90	1750	2000-3000	500-600	300	7.0	1	43	48	47	52	0.0	0.0	0	0	47	0	0	22.3
073 (07)	2	Dryad Pt	38	02/03/90	0737	10000+	500	300	6.5	1	46	44	59	56	0.0	0.0	0	0	59	0	0	21.7
* 1997 Herring Tagged																						
074 (07)	3	Image I	70	02/03/90	1438	0	450	0	7.0		W a t e r				H a u l							
072 (07)	4	Mosquito Bay (Foote I)	45	02/03/90	1857	1000+	500	200		1	51	46	61	54	0.0	0.0	0	0	61	0	0	21.2
067 (06)	5	Draper I	32	03/03/90	1344	1650	100	0	6.5		W a t e r				H a u l							
067 (06)	6	Draper I	40	03/03/90	1504	1600	300	0	6.5		W a t e r				H a u l							
067 (06)	7	Draper I	36	03/03/90	1615	1600	200	40	6.5	1	47	41	68	59	0.0	0.0	0	0	68	0	0	21.2
* 1996 Herring Tagged																						
067 (06)	8	Meyers Pass (Inside Wingate Pt)	60	04/03/90	0940	1600	300-400	200-300	6.5	1	80	65	44	35	0.0	0.0	0	0	44	0	0	20.8
* 1998 Herring Tagged																						
077 (07)	9	E Higgins (3 miles out from lagoon)	60	06/03/90	1848	5000-6000	1000	500-600	5.0	1	75	59	52	52	0.0	0.0	0	0	52	0	0	20.9
* 1997 Herring Tagged																						
067 (06)	10	Marvin I	50	07/03/90	1244		400-500	70	5.5	1	64	54	54	46	0.0	0.0	1	2	51	0	4	21.5
* 997 Herring Tagged																						
067 (06)	11	Wilby Pt	60	08/03/90	0930	5000	500-600	10-15	6.0	1	48	42	67	58	0.0	0.0	2	1	64	0	0	21.4
067 (06)	12	Meyers Pass (Inside Wingate Pt)	50	08/03/90	1830	250	50	0	6.0		W a t e r				H a u l							
067 (06)	13	Marvin I	34	09/03/90	0600	5000-6000	1000	200	6.0	1	62	52	57	48	0.0	0.0	3	2	52	0	0	21.0
077 (07)	14	E Higgins Pass (Pidwell Reef)	40	10/03/90	0605	5000+	200	100	6.0	1	65	52	61	48	0.0	0.0	0	0	61	0	0	20.6
077 (07)	15	E Higgins Pass (Pidwell Reef)	80	11/03/90	0535	5000+	200	100	6.0	1	68	52	64	48	0.0	0.0	2	2	60	0	0	20.8
077 (07)	16	E Higgins Pass (Pidwell Reef)	70	11/03/90	1238	5000	100	0	6.0		W a t e r				H a u l							
077 (07)	17	E Higgins Pass (Out from lagoon)	55	11/03/90	1335	5000+	200	150	6.0	1	70	55	58	45	0.0	0.0	0	2	56	0	1	20.7
* 1000 Herring Tagged																						

TABLE 21 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTERN PRINCESS". STAT AREA: 6,7 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
072 (07)	18	Spiller Ch	20	11/03/90	1935		75	15	6.0	1	42	44	54	56	0.0	0.0	0	21	33	0	0	21.8
072 (07)	19	Spiller Ch	50	12/03/90	0843	1000-1200	150	100	6.0	1	47	45	57	55	4.0	3.6	15	12	30	0	2	21.4
078 (07)	20	Neekas Inlet	35	12/03/90	1104	3000	80	80	6.0	1	41	41	60	59	6.0	5.1	26	18	16	0	0	20.5
077 (07)	21	E Higgens Pass	80	14/03/90	2024	500-600	100	50	6.2	1	78	58	56	42	4.0	4.8	21	9	26	0	0	20.8
										2	51	46	60	54	2.0	1.9	11	13	36	0	1	
										avg.	65	52	58	48	3.0	3.3	16	11	31			
067 (06)	22	Meyers Pass (Jamirson and Wingate Points)	25	15/03/90	1457	1200-1500	100	0		W a t e r H a u l												
077 (07)	23	Draper I	55	15/03/90	1555	1200-1500	150	0		W a t e r H a u l												
067 (06)	24	Jamieson Pt	43	15/03/90	1824	1200-1500	100	0		W a t e r H a u l												
067 (06)	25	Marvin I (Parsons Anch)	28	15/03/90	1957	700-800	skimmer	100	7.0	1	57	50	58	50	10.0	10.0	44	3	11	0	0	21.4
										2	55	50	54	50	6.5	6.5	31	11	12	0	0	
										3	58	56	46	44	7.5	8.5	29	4	13	0	0	
										avg.	57	52	53	48	8.0	8.3	35	6	12			
077 (07)	26	Draper I	40	16/03/90	1155	1200-1500	300	0	6.8	W a t e r H a u l												
067 (06)	27	Marvin I (Parsons Anch)	32	16/03/90	1546	2000	250	250	7.2	1	49	46	58	54	10.0	9.3	38	6	14	0	0	21.4
										2	64	56	50	44	9.0	10.2	39	3	8	0	0	
										3	53	51	51	49	9.0	9.2	35	2	14	0	0	
										avg.	55	51	53	49	9.3	9.6	37	4	12			
067 (06)	28	Jamieson Pt		16/03/90	1804	2000	300	250	6.8	1	46	41	66	59	10.5	8.9	45	3	18	0	0	21.3
										2	49	44	62	56	9.5	8.5	38	6	18	0	0	
										3	60	55	49	45	9.0	10.0	34	4	11	0	0	
										avg.	52	47	59	53	9.7	9.1	39	4	16			
067 (06)	29	Marvin Is	38	17/03/90	1451	2000	cut sch	80	7.0	1	54	48	58	52	10.5	10.1	41	4	13	0	0	21.5
										2	50	46	58	54	11.0	10.2	45	2	11	0	0	
										3	59	54	50	46	10.5	11.4	41	0	9	0	0	
										avg.	54	49	55	51	10.7	10.6	42	2	11			

TABLE 21 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTERN PRINCESS". STAT AREA: 6,7, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
074 (07)	30	Clarie I	50	18/03/90	0529	1500	skimmer	200	7.0	1	45	48	49	52	12.5	12.0	41	1	7	0	0	21.8
										2	46	47	52	53	13.0	12.3	47	0	5	0	1	
										3	40	41	58	59	14.5	12.3	52	3	3	0	1	
										4	44	40	66	60	15.5	12.9	54	4	8	0	0	
										avg.	44	44	56	56	13.9	12.4	49	2	6			
072 (07)	31	Spiller Ch (Outside lagoon)	70	18/03/90	1510	1000	skimmer	45	7.3	1	53	46	61	54	13.5	12.5	52	2	7	0	1	21.0
										2	67	57	51	43	10.5	12.2	46	1	4	0	0	
										3	62	53	56	47	10.0	10.6	45	3	8	0	0	
										4	63	50	64	50	12.5	12.5	52	4	8	0	1	
										avg.	61	52	58	49	11.6	12.0	49	3	7			
067 (06)	32	Marvin I (E side)	24	20/03/90	0848	2500	300	200		1	62	56	49	44	11.0	12.5	43	3	3	0	2	21.2
										2	57	52	53	48	11.5	12.0	45	0	8	0	0	
										3	68	57	52	43	10.0	11.6	44	2	6	0	0	
										avg.	62	55	51	45	10.8	12.0	44	2	6			
067 (06)	33	Kitasu Bay (Kwakwa Cr)	54	21/03/90	0737	1200	500	250	500.0	1	52	46	62	54	12.5	11.6	53	6	3	0	1	21.9
										2	50	43	66	57	14.0	12.3	58	4	4	0	3	
										3	59	53	53	47	14.0	14.9	52	0	1	0	3	
										4	55	44	69	56	14.5	12.9	59	5	5	0	1	
										avg.	54	47	63	54	13.8	12.9	56	4	3			
067 (06)	34	Wilby Pt	44	21/03/90	1038	1200	400	200		1	58	50	58	50	11.0	11.0	50	1	7	0	1	21.0
										2	57	46	66	54	13.0	12.0	56	2	8	0	0	
										3	54	46	64	54	11.0	10.2	48	4	12	0	1	
										avg.	56	47	63	53	11.7	11.1	51	2	9			
067 (06)	35	Marvin I (Parsons Anch)	15	21/03/90	1251	1000	150	100		1	50	43	66	57	12.5	11.0	49	6	11	0	0	20.8
										2	51	47	58	53	14.0	13.2	52	2	4	0	0	
										3	43	38	70	62	15.0	12.1	66	2	2	0	0	
										4	53	44	67	56	14.5	12.9	61	3	3	0	0	
										avg.	49	43	65	57	14.0	12.3	57	3	5			
077 (07)	36	E Higgins Pass (2 miles out from lagoon)	28	22/03/90	0734	1200	100	30		1	70	55	57	45	10.5	11.7	51	0	6	0	0	20.7
										2	50	40	76	60	15.0	12.5	68	5	3	0	0	
										3	59	49	61	51	13.0	12.7	55	1	5	0	0	
										4	58	48	63	52	12.0	11.5	52	4	7	0	1	
										5	62	53	56	47	12.0	12.8	51	2	3	0	1	
										avg.	60	49	63	51	12.5	12.2	55	2	5			

TABLE 21 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTERN PRINCESS". STAT AREA: 6,7, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
067 (06)	37	Kitasu Bay (Parsons Anch)	20	23/03/90	0604	1500	150	80		1	49	45	60	55	14.5	13.2	55	1	4	0	0	21.3
										2	52	45	64	55	14.5	13.2	57	1	6	0	0	
										3	51	46	59	54	13.0	12.0	53	1	5	0	0	
										4	48	42	65	58	15.0	12.9	61	1	3	0	0	
										5	59	50	58	50	12.0	12.0	52	1	5	0	0	
										avg.	52	46	61	54	13.8	12.7	56	1	5			
067 (06)	38	Thistle Pass	24	23/03/90	1054	1000	150	150		1	62	53	54	47	11.0	11.7	47	2	5	0	1	20.9
										2	51	43	69	57	14.0	12.3	60	2	7	0	1	
										3	57	48	61	52	13.0	12.5	54	2	5	0	1	
										4	54	47	60	53	14.0	13.2	55	2	3	0	0	
										avg.	56	48	61	52	13.0	12.4	54	2	5			
067 (06)	39	Wilby Is	28	23/03/90	1307	650	45	45		1	51	42	70	58	11.5	9.9	48	1	21	1	0	20.5
										2	48	39	74	61	14.0	11.5	55	0	19	1	0	
										3	50	42	70	58	13.5	11.6	58	0	12	0	0	
										4	66	49	68	51	10.0	9.8	46	3	19	0	0	
										avg.	54	43	71	57	12.3	10.7	52	1	18			
072 (07)	40	Berry Inlet	18	25/03/90	0729					1	49	51	48	49	13.5	13.8	46	0	2	0	1	21.7
										2	58	56	45	44	13.0	14.8	45	0	0	0	0	
										3	48	48	52	52	15.0	14.4	51	1	0	0	0	
										4	44	40	66	60	17.0	14.2	66	0	0	0	0	
										5	44	45	53	55	15.0	13.6	52	0	1	0	0	
										avg.	49	48	53	52	14.7	14.2	52	0	1			
		Charter Payment								1	66	59	46	41	12.0	14.6	46	0	0	0	0	
										2	63	59	44	41	12.0	14.6	43	0	1	0	0	
										3	45	43	60	57	16.5	14.5	59	0	1	0	0	
										4	55	50	54	50	15.0	15.0	53	0	1	0	0	
										5	42	38	68	62	18.0	14.5	68	0	0	0	0	
										avg.	54	50	54	50	14.7	14.7	54	0	1			

TABLE 22. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTERN PRINCESS". STAT AREA: 6,7, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
073 (07)	1	Song I	50	01/03/90	1750	1				1				5	10	25	27	22	9	2			101	22.3	18.5	1
073 (07)	2	Dryad Pt	38	02/03/90	0737	2					1		2	5	19	34	23	12	2	1			99	21.7	18.5	2
074 (07)	3	Image I	70	02/03/90	1438				Water Haul																	
072 (07)	4	Mosquito Bay	45	02/03/90	1857	3					4	2	4	12	24	18	19	10	4	2			99	21.2	18.5	7
067 (06)	5	Draper I	32	03/03/90	1344				Water Haul																	
067 (06)	6	Draper I	40	03/03/90	1504				Water Haul																	
067 (06)	7	Draper I	36	03/03/90	1615	4					1		4	6	31	37	13	7	1				100	21.2	18.5	1
067 (06)	8	Meyers Pass	60	04/03/90	0940	5				1		2	3	14	36	31	11	2	1				101	20.8	18.5	3
077 (07)	9	E Higgins Pass	60	06/03/90	1848	6							2	17	37	31	9	4					100	20.9	18.5	1
067 (06)	10	Marvin I	50	07/03/90	1244	7		1					2	5	22	44	19	9	1				103	21.5	18.5	1
067 (06)	11	Wilby Pt	60	08/03/90	0930	8							3	6	32	29	23	3	3	1			100	21.4	18.5	1
067 (06)	12	Meyers Pass	50	08/03/90	1830				Water Haul																	
067 (06)	13	Marvin I	34	09/03/90	0600	9					1	1	5	7	29	42	12	2	1				100	21.0	18.5	4
077 (07)	14	E Higgins Pass	40	10/03/90	0605	10				1	1	1	1	22	45	18	10		1				100	20.6	18.5	3
077 (07)	15	E Higgins Pass	80	11/03/90	0535	11					1		5	18	35	27	11	4					101	20.8	18.5	6
077 (07)	16	E Higgins Pass	70	11/03/90	1238				Water Haul																	
077 (07)	17	E Higgins Pass	55	11/03/90	1335	12						1	8	18	30	26	9	5					97	20.7	18.5	3
072 (07)	18	Spiller Ch	20	11/03/90	1935	13						1	2	5	21	27	23	14	6				99	21.8	18.5	2
072 (07)	19	Spiller Ch	50	12/03/90	0843	14					1	1	6	14	17	29	14	13	5	2			102	21.4	18.5	3
077 (07)	20	Neekas Inlet	35	12/03/90	1104	15				3	6	11	6	13	19	10	18	9	4	2			101	20.5	18.5	24
077 (07)	21	Pidwell Pt	80	14/03/90	2024	16				1	1	3	6	16	26	23	19	4					99	20.8	18.5	6
067 (06)	22	Meyers Pass	25	15/03/90	1457				Water Haul																	
067 (06)	23	Draper I	55	15/03/90	1555				Water Haul																	
067 (06)	24	Meyers Pass	43	15/03/90	1824				Water Haul																	
067 (06)	25	Marvin I	28	15/03/90	1957	17						1	1	8	26	41	14	6	2	1			100	21.4	18.5	1

TABLE 22 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTERN PRINCESS". STAT AREA: 6,7, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
							13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				
077 (07)	26	Draper I	40	16/03/90	1155		W a t e r						H a u l													
067 (06)	27	Marvin I	32	16/03/90	1546	18						1	1	13	21	37	20	11	1				105	21.4	18.5	1
067 (06)	28	Jamieson Pt		16/03/90	1804	19				1	1	1	1	7	29	36	13	12	1				102	21.3	18.5	3
067 (06)	29	Marvin I	38	17/03/90	1451	20							2	10	24	30	21	11	1	1			100	21.5	18.5	0
074 (07)	30	Clarie I	50	18/03/90	0529	21					2	1	4	8	14	21	25	15	10				100	21.8	18.5	5
072 (07)	31	Spiller Ch	70	18/03/90	1510	22				1	1	3	3	18	25	24	12	6	3	2			98	21.0	18.5	7
067 (06)	32	Marvin I	24	20/03/90	0848	23					2		4	8	31	29	19	6	2				101	21.2	18.5	4
067 (06)	33	Kitasu Bay	54	21/03/90	0737	24					1	2	3	15	32	31	7	7	2				100	20.9	18.5	5
067 (06)	34	Wilby Bay	44	21/03/90	1038	25						1	1	16	28	37	14	1	1				99	21.0	18.5	1
067 (06)	35	Parsons Anch	15	21/03/90	1251	26					3	1	5	15	30	28	16	3					101	20.8	18.5	7
077 (07)	36	E Higgins Pass	28	22/03/90	0734	27					1	2	5	17	36	27	11	1					100	20.7	18.5	6
067 (06)	37	Parsons Anch	20	23/03/90	0604	28						2	4	13	24	25	16	9	4				97	21.3	18.5	4
067 (06)	38	Thistle Pass	24	23/03/90	1054	29					1	2	5	13	31	26	19	2	1				100	20.9	18.5	4
067 (06)	39	Wilby Pt	28	23/03/90	1307	30					3	5	6	22	25	25	11	1	2				100	20.5	18.5	11
072 (07)	40	Berry Inlet	18	25/03/90	0729	31					1		6	4	20	29	22	7	10	1			100	21.7	18.5	6

TABLE 23. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II". STAT AREA: 7,8, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
085 (08)	1	Kwakshua Ch	35	03/03/90	1930	3000-4000	1000	500	6.5	1	60	48	64	52	0.0	0.0	0	0	64	0	0	20.6
* 998 Herring Tagged																						
085 (08)	2	Kwakshua Ch (Whittaker Pt)	42	04/03/90	0440	4000-5000	1000-1500	300	6.4	1	67	52	63	48	0.0	0.0	0	0	63	0	2	20.5
* 999 Herring Tagged																						
074 (07)	3	Stryker Bay	30	04/03/90	1950	500	150	100	7.0	1	38	43	51	57	0.0	0.0	0	1	50	0	1	22.0
* 497 Herring Tagged																						
074 (07)	4	Dundivan Inlet (Heading towards Seaforth)	50	06/03/90	0455	300	200	100	6.4	1	34	33	70	67	0.0	0.0	0	0	70	0	0	21.5
* 998 Herring Tagged																						
074 (07)	5	Norman Morrison Bay	40	06/03/90	1725	1500	700-800	450	6.3	1	49	48	54	52	0.0	0.0	0	0	54	0	0	22.0
* 998 Herring Tagged																						
074 (07)	6	Boddy Narrows	40	06/03/90	2000	400	300	150	6.5	1	37	40	55	60	0.0	0.0	0	0	55	0	0	22.0
* 500 Herring Tagged																						
072 (07)	7	Foote I (Outside Spiller Ch)	40	07/03/90	0550	2500-3000	2500-3000	150	6.5	1	54	46	63	54	0.0	0.0	0	1	62	0	7	21.1
* 996 Herring Tagged																						
074 (07)	8	Clarie I	45	08/03/90	0545	800	800	150	6.7	1	42	43	56	57	0.0	0.0	0	5	51	0	0	22.1
* 1000 Herring Tagged																						
085 (08)	9	Kwakshua Ch	50	09/03/90	2100	1500	250	250	6.7	1	72	60	48	40	0.0	0.0	0	0	48	0	11	20.4
* 997 Herring Tagged																						
074 (07)	10	Seaforth Ch (Entrance to Return Ch)	45	10/03/90	1445	2000	150	75	6.7	1	53	50	54	50	0.0	0.0	0	9	45	0	2	20.9
* 1500 Herring Tagged																						
072 (07)	11	Spiller Ch	36	10/03/90	1845	400-500	200	100-150	6.4	1	41	39	63	61	1.0	0.8	7	14	42	0	2	20.7
										2	48	44	62	56	2.5	2.2	14	8	40	0	2	
										3	39	39	62	61	0.5	0.4	8	17	37	0	0	
										avg.	43	41	62	59	1.3	1.2	10	13	40			
074 (07)	12	Foote I	40	10/03/90	2120	3000	skimmer	200	6.4	1	58	56	46	44	0.0	0.0	0	7	39	0	1	20.9

TABLE 23 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II". STAT AREA: 7,8, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
073 (07)	13	Lama Pass (Napier Pt)	25	12/03/90	0845	300	50	50	6.0	1	74	69	34	31	0.0	0.0	0	0	34	0	163	17.1
* 992 Herring Tagged																						
074 (07)	14	Early Pass (E of Mid I)	50	12/03/90	1615	150	150	100	6.2	1	53	54	46	46	1.0	1.1	7	14	25	0	0	22.9
072 (07)	15	Spiller Ch (W side of Grief I)	62	12/03/90	1805		100	0		W a t e r H a u l												
072 (07)	16	Spiller Ch (1mi S Spiller Lagoon)	20	14/03/90	1015	500	200	0	7.2	W a t e r H a u l												
072 (07)	17	Spiller Ch (1mi S Spiller Lagoon)	30	14/03/90	1245	800 Sample is	150 Not	1 Bucket Representative	7.2	No Data												17.7
072 (07)	18	Spiller Ch (N of Locke I, Foote I)	30	14/03/90	1950	1500	400-500	200	6.9	1	50	49	53	51	8.0	7.8	34	6	13	0	1	21.4
										2	51	46	59	54	9.0	8.3	37	8	14	0	3	
										avg.	51	48	56	53	8.5	8.1	36	7	14			
074 (07)	19	Joassa Ch (Top end Boddy Pass)	35	15/03/90	1950	1000	200	150	6.8	1	46	49	47	51	12.5	12.3	38	2	7	0	0	21.8
										2	50	58	36	42	8.0	9.5	24	4	8	0	0	
										3	32	34	61	66	14.0	10.6	46	5	10	0	0	
										avg.	43	47	48	53	11.5	10.8	36	4	8			
074 (07)	20	Clarie I	34	15/03/90	2110	1500	skimmer	100	6.8	1	30	35	56	65	13.5	10.4	41	10	5	0	0	22.5
										2	48	58	35	42	10.0	11.9	30	4	1	1	0	
										3	32	39	50	61	12.5	10.2	36	7	7	0	1	
										avg.	37	44	47	56	12.0	10.8	36	7	4			
074 (07)	21	Dundivan Inlet (Check I)	33	16/03/90	0525	400-500	250	75	6.5	1	49	46	58	54	10.5	9.7	45	6	7	1	0	21.3
										2	66	62	41	38	6.5	8.6	24	6	11	0	0	
										3	53	50	53	50	10.5	10.5	37	6	10	0	1	
										avg.	56	53	51	47	9.2	9.6	35	6	9			
074 (07)	22	Norman Morrison Bay	42	16/03/90	0920	150	30	30	6.9	1	40	42	55	58	10.5	9.1	37	6	12	0	3	21.4
										2	51	51	49	49	8.0	8.2	31	10	8	0	0	
										3	40	43	53	57	11.0	9.6	36	10	7	0	0	
										avg.	44	45	52	55	9.8	9.0	35	9	9			
072 (07)	23	Spiller Ch (Foote I)	45	16/03/90	1550	800-1000	300	200	7.4	1	46	48	50	52	11.0	10.6	40	7	3	0	1	21.9
										2	64	65	34	35	8.5	12.1	28	4	2	0	0	
										3	48	52	45	48	11.0	11.5	37	2	6	0	1	
										avg.	53	55	43	45	10.2	11.4	35	4	4			

TABLE 23 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II". STAT AREA: 7,8, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
072 (07)	24	Berry Inlet	15	16/03/90	1905	500-600	100	100	7.3	1	55	54	46	46	11.5	12.5	38	6	2	0	0	21.6
										2	54	51	51	49	12.0	12.2	44	4	3	0	0	
										3	54	55	45	45	10.5	11.7	38	6	1	0	0	
										avg.	54	53	47	47	11.3	12.1	40	5	2			
072 (07)	25	Neekis Inlet (West Arm)	56	17/03/90	1505	+2500	300	150	6.8	1	51	50	50	50	13.0	13.0	45	3	2	0	0	22.3
										2	53	54	46	46	11.5	12.5	42	3	1	0	0	
										3	41	43	54	57	15.0	13.2	52	2	0	0	1	
										4	54	51	51	49	13.5	13.8	46	2	3	0	0	
										avg.	50	50	50	51	13.3	13.1	46	3	2			
072 (07)	26	Spiller Ch (N of Neekas Inlet)	40	17/03/90	1705	2000-3000	200	100	7.4	1	54	51	51	49	13.8	14.0	48	2	1	0	0	21.9
										2	39	38	64	62	15.5	12.5	60	2	2	0	0	
										3	56	53	49	47	12.0	12.8	44	2	3	0	0	
										avg.	50	47	55	53	13.8	13.1	51	2	2			
072 (07)	27	Spiller Ch (N of Foote I)	10	18/03/90	0655	800	200	150	7.3	1	43	46	51	54	14.0	13.0	46	2	3	0	1	21.9
										2	40	39	63	61	15.3	12.5	57	3	3	0	1	
										3	48	48	52	52	12.0	11.5	45	5	2	0	0	
										4	42	42	59	58	13.8	11.9	52	3	4	0	1	
										avg.	43	44	56	56	13.8	12.2	50	3	3			
072 (07)	28	Spiller Ch (1mi N of Neekas)	60	18/03/90	1845	300-400	150	100	7.5	1	47	44	59	56	15.0	13.4	56	1	2	0	0	21.6
										2	44	44	57	56	15.0	13.4	56	0	1	0	1	
										3	45	43	59	57	16.0	14.0	54	2	3	0	0	
										4	53	51	50	49	15.0	15.3	48	0	2	0	0	
										avg.	47	46	56	55	15.3	14.0	54	1	2			
074 (07)	29	Clarie I (E side of Stryker I)	30	20/03/90	0840	1500	400	150	7.4	1	53	48	58	52	13.8	13.2	51	1	6	0	5	21.2
										2	60	51	57	49	12.0	12.2	44	1	12	0	1	
										3	43	41	61	59	14.5	12.3	58	1	2	0	3	
										4	60	54	51	46	12.0	13.0	42	1	8	0	6	
										avg.	54	49	57	52	13.1	12.7	49	1	7			
074 (07)	30	Norman Morrison bay	42	20/03/90	1045	300-400	75	25	7.6	1	47	43	63	57	14.3	12.5	54	4	5	0	0	21.3
										2	44	42	62	58	14.5	12.5	57	0	5	0	0	
										3	51	47	58	53	13.3	12.5	53	3	2	0	0	
* Tag Recovered in Set - H580262										4	59	53	52	47	11.8	12.5	44	2	6	0	0	
										avg.	50	46	59	54	13.4	12.5	52	2	5			
074 (07)	31	Seaforth Ch (Bullen R)	40	21/03/90	1055		300	0	7.9	W a t e r H a u l												

TABLE 23 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II". STAT AREA: 7,8, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
072 (07)	32	Spiller Ch (N of Locke I)	25	21/03/90	1205	1000	300	200-250	8.2	1	47	49	48	51	14.5	14.2	48	0	0	0	0	21.9
										2	46	45	57	55	14.0	12.7	53	0	4	0	0	
										3	44	43	58	57	16.0	14.0	55	0	3	0	0	
										4	50	50	50	50	14.3	14.3	49	0	1	0	0	
										avg.	47	47	53	53	14.7	13.8	51	0	2			
077 (07)	33	Higgins Pass (Price I Shore)	35	25/03/90	0740	2000-2500	400-500	25	6.6	1	88	57	66	43	4.5	5.2	27	7	32	0	5	19.2
						Sample is Not Representative				2	98	61	63	39	4.0	5.1	29	3	31	0	8	
										avg.	93	59	65	41	4.3	5.2	28	5	32			
072 (07)	34	Spiller Ch	40	23/03/90	1115	150	75	8	7.3	1	71	61	46	39	9.5	12.2	43	0	3	0	7	20.6
						Sample is Not Representative				2	70	56	54	44	9.5	10.8	46	0	8	0	1	
										avg.	71	59	50	42	9.5	11.5	45	0	6			
072 (07)	35	Spiller Ch (E Shore across from Neekas)	70	23/03/90	1550	800	300	250	8.0	1	48	50	48	50	13.5	13.5	47	1	0	0	0	21.9
										2	44	47	50	53	15.0	14.2	50	0	0	0	1	
										3	41	43	54	57	15.5	13.6	54	0	0	0	1	
										4	57	52	53	48	13.0	13.5	51	2	0	0	0	
										avg.	48	48	51	52	14.3	13.7	51	1	0			
072 (07)	36	Spiller Ch (1mi N Mosquito Bay)	70	23/03/90	1740	300-400	75-100	75-100	7.2	1	41	42	57	58	17.0	14.7	56	0	1	0	0	21.9
										2	51	48	55	52	15.0	14.4	55	0	0	0	0	
										3	44	43	58	57	15.0	13.2	58	0	0	0	0	
										4	42	40	62	60	15.5	12.9	62	0	0	0	0	
										avg.	45	43	58	57	15.6	13.8	58	0	0			
077 (07)	37	Higgins Pass	18	26/03/90	1320	2500	100	100	7.5	1	52	45	63	55	13.0	11.8	58	4	1	0	0	21.2
										2	50	43	65	57	14.0	12.3	62	1	2	0	0	
										3	68	59	48	41	11.0	13.4	47	0	1	0	0	
										avg.	57	49	59	51	12.7	12.5	56	2	1			
C. Venture		Mosquito Bay		18/03/90		Seine Fishery Sample				1	53	53	47	47	12.0	12.8	43	2	2	0	0	21.4
Kynoc		Mosquito Cr		18/03/90	1102	Seine Fishery Sample				1	49	49	52	51	14.0	13.7	51	0	1	0	0	21.8
										2	50	47	56	53	14.3	13.4	53	0	3	1	0	
										avg.	50	48	54	52	14.2	13.6	52	0	2			
Marc Allen		Mosquito Bay		18/03/90		Seine Fishery Sample				1	52	67	26	33	9.0	13.6	23	2	1	0	0	21.5
Sandy Ann		Mosquito Bay		18/03/90		Seine Fishery Sample				1	40	41	57	59	15.5	13.1	56	0	1	0	0	21.9
Toaska		N Mosquito Bay		18/03/90		Seine Fishery Sample				1	45	44	58	56	15.0	13.4	51	2	5	0	0	22.0
Leslie Ellen		Neekas		18/03/90		Seine Fishery Sample				1	58	54	50	46	10.5	11.4	47	2	1	0	0	21.2

TABLE 23 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II". STAT AREA: 7,8, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
Annuati		Spiller Lagoon		24/03/90		Seine	Fishery	Sample		1	54	51	51	49	12.8	13.1	50	0	1	0	0	20.9
Vic Isle		Spiller Lagoon		24/03/90		Seine	Fishery	Sample		1	45	46	53	54	14.0	13.0	53	0	0	0	0	21.6
Cape Mark		Mid Spiller Ch		24/03/90		Seine	Fishery	Sample		1	62	54	52	46	12.0	13.0	51	0	1	0	0	21.4
Cape Canso		Spiller Lagoon		24/03/90		Seine	Fishery	Sample		1	63	53	55	47	13.0	13.8	55	0	0	0	0	21.0
Quadra Isle		Spiller Lagoon		24/03/90		Seine	Fishery	Sample		1	37	39	58	61	17.0	13.9	58	0	0	0	0	22.1
New Queen		Neekas				Seine	Fishery	Sample		1	62	46	73	54	13.5	12.5	71	0	2	0	0	19.9
067 (06)		Kitasu Bay (Wilby Pt)		28/03/90	1000	Gillnet	Fishery	Sample		1	42	42	58	58	14.5	12.5	57	1	0	4	0	22.1
067 (06)		Kitasu Bay (Wilby Pt)		28/03/90	1730	Gillnet	Fishery	Sample		1	30	34	59	66	15.5	11.7	58	1	0	1	0	22.1
067 (06)		Kitasu Bay (1mi from Wilby Pt)		28/03/90	1815	Gillnet	Fishery	Sample		1	44	49	45	51	12.0	11.8	45	0	0	1	0	22.5
067 (06)		Kitasu Bay (2mi E Wilby Pt)		28/03/90	1000	Gillnet	Fishery	Sample		1	45	44	57	56	12.5	11.2	57	0	0	0	0	22.0
						Gillnet	Fishery	Sample		No Information Given												22.9
074 (07)		Princess Alice I		29/03/90		Gillnet	Fishery	Sample		1	31	48	33	52	8.5	8.2	33	0	0	27	0	22.9
		Seine Set by Hydroacoustic and Spawn Assessment Vessel Kynoc Charter Payment Herring																				
072 (07)	1	Berry Inlet		24/03/90			200	200		1	53	51	51	49	13.0	13.3	49	2	0	104	0	21.0
										2	51	49	54	51	14.0	13.7	52	0	2	105	0	
										3	56	51	53	49	10.5	10.7	51	0	2	108	0	
										avg.	53	50	53	50	12.5	12.6	51	1	1			
										1	62	55	50	45	14.0	15.6	48	2	0	11	1	21.2
										2	46	46	55	54	15.5	14.4	52	2	1	1	0	
										3	42	42	57	58	16.3	14.0	56	0	1	0	0	
										4	53	51	50	49	14.0	14.3	50	0	0	0	0	
										avg.	51	49	53	52	15	15	52	1	1			
										1	51	47	57	53	16.0	15.1	57	0	0	0	0	
										2	50	46	58	54	15.0	13.9	58	0	0	0	0	
										3	47	48	51	52	14.5	13.9	51	0	0	0	0	
										avg.	49	47	55	53	15.2	14.3	55	0	0			

TABLE 24. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II". STAT AREA: 7,8, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
085 (08)	1	Kwakshua Ch	35	03/03/90	1930	1					1	1	10	20	30	22	12	2	0	2			100	21	18.5	4
085 (08)	2	Kwakshua Ch	42	04/03/90	0440	2				1	2	1	11	16	37	16	10	4	2				100	21	18.5	7
074 (07)	3	Stryker Bay	30	04/03/90	1950	3						3	3	5	13	21	28	19	7	1			100	22	18.5	3
074 (07)	4	Dundivan Inlet	50	06/03/90	0455	4					2	1	10	11	14	18	18	21	4	1			100	22	18.5	6
074 (07)	5	Norman Morrison Bay	40	06/03/90	1725	5		1	0	1	1	2	3	1	16	17	27	23	3	5			100	22	18.5	7
074 (07)	6	Boddy Narrows	40	06/03/90	2000	6							3	7	15	25	22	15	12	1			100	22	18.5	2
072 (07)	7	Foote I	40	07/03/90	0550	7				1	1	3	5	11	26	25	17	7	3	1			100	21	18.5	6
074 (07)	8	Clarie I	45	08/03/90	0545	8					3	1	2	3	15	17	28	23	5	3			100	22	18.5	5
085 (08)	9	Kwakshua Ch	50	09/03/90	2100	9			1	1	1	4	7	27	21	22	10	2	2	1			99	20	18.5	8
074 (07)	10	Seaforth Ch	45	10/03/90	1445	10			1	4	1	3	6	12	25	12	18	14	3	1			100	21	18.5	14
072 (07)	11	Spiller Ch	36	10/03/90	1845	11			1	3	6	5	11	10	11	18	23	7	5	1			101	21	18.5	21
074 (07)	12	Foote I	40	10/03/90	2120	12				2	2	0	4	21	24	20	16	9	2				100	21	18.5	5
073 (07)	13	Lama Pass	25	12/03/90	0845	13		2	13	19	31	11	5	5	6	3	2	3					100	17	18.5	78
074 (07)	14	Early Pass	50	12/03/90	1615	14						1	2	4	10	27	30	22	3	1			100	22	18.5	1
072 (07)	15	Spiller Ch	62	12/03/90	1805					Water		Haul														
072 (07)	16	Spiller Ch	20	14/03/90	1015					Water		Haul														
072 (07)	17	Spiller Ch	30	14/03/90	1245	15	1	0	3	6	21	27	16	14	5	3	0	3					99	18	18.5	64
072 (07)	18	Spiller Ch	30	14/03/90	1950	16						2	4	14	26	17	15	15	5	2			100	21	18.5	2
074 (07)	19	Joassa Ch	35	15/03/90	1950	17					1	2	1	2	15	28	26	14	6				95	22	18.5	3
074 (07)	20	Clarie I	34	15/03/90	2110	18						2	3	2	8	15	30	22	14	4			100	23	18.5	5
072 (07)	21	Dundivan Inlet	33	16/03/90	0525	19					1	0	6	5	32	23	22	9	2				100	21	18.5	3
074 (07)	22	Norman Morrison Bay	42	16/03/90	0920	20		1	0	1	4	1	4	11	13	17	25	15	8				100	21	18.5	8
072 (07)	23	Spiller Ch	45	16/03/90	1550	21					2	0	1	5	19	26	22	11	13	1			100	22	18.5	2
072 (07)	24	Berry Inlet	15	16/03/90	1905	22							1	11	24	26	25	8	4	1			100	22	18.5	0
072 (07)	25	Neekas Inlet	56	17/03/90	1505	23						1	1	6	19	26	19	17	7	5			101	22	18.5	1

TABLE 24 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II". STAT AREA: 7,8, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
072 (07)	26	Spiller Ch	40	17/03/90	1705	24				1	2	2	7	17	19	20	19	6	0	1			94	21.8	18.5	4
072 (07)	27	Spiller Ch	10	18/03/90	0655	25			1	0	0	1	7	13	35	22	14	6	1				100	21.9	18.5	1
072 (07)	28	Spiller Ch	60	18/03/90	1845	26			2	0	3	3	13	16	19	23	10	7	4				100	21.6	18.5	5
074 (07)	29	Clarie I	30	20/03/90	0840	27			1	0	0	5	17	20	22	15	13	6	1				100	21.4	18.5	4
074 (07)	30	Norman Morrison Bay	42	20/03/90	1045	28				1	3	3	14	24	20	23	6	4	1	1			100	21.3	18.5	4
074 (07)	31	Seaforth Ch	40	21/03/90	1055				W a t e r			H a u l														
072 (07)	32	Spiller Ch	25	21/03/90	1205	29						1	3	24	28	23	16	4	2				101	21.9	18.5	0
077 (07)	33	Higgins Pass	35	23/03/90	0740	30			1	9	13	21	36	20	8	2							110	19.2	18.5	30
072 (07)	34	Spiller Ch	40	23/03/90	1115	31		2	5	4	2	5	10	27	18	18	6	3					100	20.6	18.5	15
072 (07)	35	Spiller Ch	70	23/03/90	1550	32					1	3	7	11	26	35	13	3	1				100	21.9	18.5	1
072 (07)	36	Spiller Ch	70	23/03/90	1740	33					1	0	13	15	20	30	13	3	5				100	21.9	18.5	1
077 (07)	37	Higgins Pass	18	26/03/90	1320	34					2	3	14	21	38	11	8	3	1				101	21.2	18.5	2
C. Venture		Mosquito Bay		18/03/90		Seine Fishery Sample							1	10	29	27	20	8	3				98	21.4	18.5	0
Kynoc		Mosquito Bay		18/03/90		Seine Fishery Sample						1	3	5	23	26	19	14	5	3			99	21.8	18.5	3
Marc Allen		N Mosquito Bay		18/03/90		Seine Fishery Sample						1	7	3	20	15	16	11	2	1			76	21.5	18.5	5
Sandy Ann		Mosquito Cr		18/03/90		Seine Fishery Sample				1		2	7	18	20	29	19	5					101	21.9	18.5	2
Toaska		Mosquito Bay		18/03/90		Seine Fishery Sample							1	12	17	19	23	20	6	1	1		100	22.0	18.5	1
Leslie Ellen		Neekas		18/03/90		S Fish Sample			1		1	3	5	13	20	24	23	9	2	1	1		103	21.2	18.5	5
Annuati		Spiller Lagoon		24/03/90		Seine Fishery Sample					1	3	4	27	28	11	20	8	3				105	20.9	18.5	8
Vic Isle		Spiller Lagoon		24/03/90		Seine Fishery Sample							2	13	20	30	22	9	5	2			103	21.6	18.5	1
Cape Mark		Spiller Lagoon		24/03/90		Seine Fishery Sample					1	3	8	17	33	36	8	7	2	1			116	20.8	18.5	6
Cape Canso		Spiller Lagoon		24/03/90		Seine Fishery Sample						1	4	17	37	27	12	5	2	1			106	21.0	18.5	4
Quadra Isle		Spiller Lagoon		24/03/90		Seine Fishery Sample							1	6	15	24	27	14	9	2			98	22.1	18.5	1
New Queen		Neekas		24/03/90		S Fish Sample			1	4	15	8	20	15	29	22	9	8	3	1			135	19.9	18.5	1
067 (06)		Kitasu Bay		28/03/90	1000	Gillnet Fishery Sample									8	39	39	10	3				99	22.1	18.5	0

TABLE 24. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II". STAT AREA: 7,8 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
067 (06)		Kitasu Bay		28/03/90	1730	Gillnet Fishery Sample									8	37	31	11	3	1				91	22.1	18.5	0
067 (06)		Kitasu Bay		28/03/90	1815	Gillnet Fishery Sample									1	26	36	21	4	1				89	22.5	18.5	0
067 (06)		Kitasu Bay		28/03/90	1000	Gillnet Fishery Sample									12	50	22	18						102	22.0	18.5	0
						Gillnet Fishery Sample									2	9	27	40	13	1				92	23.1	18.5	0
074 (07)		Princess Alice I		29/03/90		Gillnet Fishery Sample								2	4	14	27	30	12	2				91	22.9	18.5	0
		Seine Set by Hydroacoustic and Spawn Assessment Vessel Kynoc Charter Payment Herring																									
072 (07)	1	Berry Inlet		24/03/90		Test Fish		1	3	3	9	8	27	32	12	9	3	2						109	21.0	18.5	12
						Test Fish		1	0	1	4	15	21	28	18	9	3							100	21.2	18.5	4
						Test Fish																					

TABLE 25. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN ROYAL". STAT AREA: 8,9,10,12,13, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
132 (13)	1	Deepwater Bay (1/2 btwn Bodega Pt & Ent to Dw Bay	100	04/03/90	1730	600	100	2	8.2	W a t e r			H a u l									
132 (13)	2	Deepwater Bay (Outside)		04/03/90	1810	1000+	200	50	8.2	1	15	75	5	25	0.0	0.0			5	0	86	15.5
132 (13)	3	Deepwater Bay (Entrance)	35	05/03/90	0545	3000+	100	15-20	8.1	1	85	52	80	48	0.0	0.0	0	1	79	7	76	17.8
127 (12)	4	Knight Inlet (West Edge of Flats)	40	06/03/90	1900	2000-3000	300	150	6.5	1	107	59	74	41	0.0	0.0	0	12	62	2	3	18.4
										2	112	62	69	38	0.0	0.0	0	9	60	0	0	
										avg.	110	61	72	40	0.0	0.0	0	11	61			
125 (12)	5	Thompson Sd (Off London Pt)	100	07/03/90	0950	500	300	10lbs	7.0	W a t e r			H a u l									
125 (12)	6	Bond Sd (NW Corner)	50	07/03/90	1145	500	300+	150	7.6	1	70	57	52	43	0.0	0.0	0	1	51	0	221	15.4
126 (12)	7	Wakeman Sd	45	08/03/90	0545	1500-2000	50	50	6.0	1	91	50	91	50	3.5	3.5	27	21	43	0	5	18.1
										2	87	49	91	51	3.5	3.4	25	21	45	2	11	
										avg.	89	50	91	51	3.5	3.5	26	21	44			
125 (12)	8	Retreat Pass		10/03/90	1015	400-500	20	1	7.5	1	69	54	58	46	0.0	0.0	0	0	58	0	19	19.6
						Sample is not Representative																
102 (10)	9	Takush Harbour (Search Is)	40	12/03/90	1445		200	0	7.4	W a t e r			H a u l									
102 (10)	10	Takush Harbour (Indian Is)	35	12/03/90	1545		200		7.4	W a t e r			H a u l									
102 (10)	11	Takush Harbour	38	12/03/90	1745	1000+	300	300	7.6	1	58	44	74	56	0.8	0.7	3	4	67	0	0	19.7
093 (09)	12	Kilbella Bay	30	12/03/90	0610	2000	1000	150	6.6	1	88	48	97	52	5.0	4.8	45	14	38	0	0	18.7
085 (08)	13	Fairmile Pass	40	14/03/90	1545	400-500	300	150	7.8	1	65	55	53	45	1.0	1.1	5	3	45	0	0	20.6
085 (08)	14	Kwakshua Ch (0.5mi W of Experiment Pt)	60	14/03/90	1735		200	0		W a t e r			H a u l									
085 (08)	15	Kwakshua Ch	60	15/03/90	0635	4000+	500	100	7.1	1	47	38	78	47	0.8	0.9	1	1	76	0	11	20.1

TABLE 26. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN ROYAL". STAT AREA: 8,9,10,12,13, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
132 (13)	1	Deepwater Bay	100	04/03/90	1730	1				Water Haul																
132 (13)	2	Deepwater Bay		04/03/90	1810	2	21	0	14	28	21	12	7	2	1								106	15.5	19.0	97
132 (13)	3	Deepwater Bay	35	05/03/90	0545	3			1	9	13	31	37	4	4	2							101	17.8	19.0	91
127 (12)	4	Knight Inlet	40	06/03/90	1900	4				4	3	23	52	14	3	3							102	18.4	19.0	82
125 (12)	5	Thompson Sd	100	07/03/90	0950					Water Haul																
125 (12)	6	Bond Sd	50	07/03/90	1145	6	15	13	21	15	6	14	13	3									100	15.4	19.0	97
126 (12)	7	Wakeman Sd	45	08/03/90	0545	7		1	1	4	15	25	32	16	6	1	1						102	18.1	19.0	78
125 (12)	8	Retreat Pass		10/03/90	1015	8				2	12	18	16	7	7	25	7	5	1	1			101	19.6	19.0	48
102 (10)	9	Takush Harbour	40	12/03/90	1445					Water Haul																
102 (10)	10	Takush Harbour	35	12/03/90	1545					Water Haul																
102 (10)	11	Takush Harbour	38	12/03/90	1745	9					2	7	25	29	18	13	4	0	2				100	19.7	19.0	34
093 (09)	12	Kilbella Bay	30	12/03/90	0610	10				2	11	16	32	23	14	2	1	1					102	18.7	19.0	61
085 (08)	13	Fairmile Pass	40	14/03/90	1545	11				1	3	8	5	18	20	27	11	3	3	1			100	20.6	19.0	17
085 (08)	14	Kwakshua Ch	60	14/03/90	1735					Water Haul																
085 (08)	15	Kwakshua Ch	60	15/03/90	0635	12				1	1	2	15	26	28	23	4	1					101	20.1	19.0	19

TABLE 27. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ROYAL MARINER". STAT AREA: 13,14,15, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
142 (14)	1	Baynes Sd (Deephole) * 499 Herring Tagged	30	20/02/90	1900	6000	6000	100	7.1	1	79	59	54	41	0.0	0.0	0	0	54	0	5	20.7
142 (14)	2	Baynes Sd (Deephole) * 998 Herring Tagged	22	21/02/90	0550	6000	6000	150	6.9	1	64	50	65	50	0.0	0.0	0	1	64	0	2	20.6
152 (15)	3	Powell River * 999 Herring Tagged	26	21/02/90	1358		1000	50	7.0	1	109	57	83	43	0.0	0.0	0	0	83	0	3	19.2
152 (15)	4	Powell River	48	22/02/90		10000+	100	0	6.7	W a t e r			H a u l									
152 (15)	5	Powell River * 498 Herring Tagged	30	22/02/90	0758	10000+	2000+	200	7.0	1	71	44	92	56	0.0	0.0	0	1	91	0	3	19.6
152 (15)	6	Powell River	35	22/02/90	1157	10000+	50		6.9	W a t e r			H a u l									
152 (15)	7	Powell River * 1000 Herring Tagged	22	22/02/90	1247	10000+	500	150	7.0	1	72	42	100	58	0.0	0.0	0	1	99	0	2	19.9
152 (15)	8	Powell River (0.25mi off breakwater) * 1498 Herring Tagged	30	23/02/90	1127	15000	300	50	7.0	1	75	50	74	50	0.0	0.0	0	3	71	0	2	20.2
132 (13)	9	Deepwater Bay (Near head) * 997 Herring Tagged	30	24/02/90	0617	2000	20	20	7.9	1	123	99	1	1	0.0	0.0	0	0	60	0	17	18.9
152 (15)	10	Powell River * 1500 Herring Tagged	30	25/02/90	1010	15000	15000	120	7.1	1	79	49	83	51	0.0	0.0	0	2	81	0	1	19.7
152 (15)	11	Powell River	30	26/02/90	1346	20000	5000	300	7.3	1	81	57	62	43	0.0	0.0	3	5	54	0	2	20.0
142 (14)	12	Deep Bay	28	27/02/90	0625	8000-10000	50	0	6.8	W a t e r			H a u l									
142 (14)	13	Lambert Ch (0.25mi S of Shingle Spit)	38	27/02/90	1034	2000	200	60	7.4	1	51	46	60	54	3.8	3.5	15	9	36	0	0	21.7
										2	48	46	56	54	3.3	3.0	12	4	40	0	0	
										3	45	40	67	60	3.5	2.9	13	9	45	0	1	
										avg.	48	44	61	56	3.5	3.1	13	7	40			
142 (14)	14	Baynes Sd (Deephole)	40	27/02/90	1908	8000	6000	100	7.8	1	58	43	78	57	1.5	1.3	7	15	56	0	6	20.8
										2	62	46	74	54	2.0	1.9	8	4	62	0	0	
										3	48	38	77	62	1.5	1.2	8	11	58	0	1	
										avg.	56	42	76	58	1.7	1.5	8	10	59			
152 (15)	15	Powell River (0.5W of Ferry dock btwn P.R. & Westview)	28	28/02/90	1630	17000	1000	170	7.5	1	85	47	95	53	1.0	0.9	7	6	82	0	4	19.1

TABLE 27 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ROYAL MARINER". STAT AREA: 13,14,15, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Sprnd Out	Juv or Imm	Avg. Length (cm)
142 (14)	16	Lambert Ch (N Ferry landing, Hornby I)	27	01/03/90	1055		300	0	7.4	W a t e r H a u l												
142 (14)	17	Lambert Ch (Off Ferry landing, Hornby I)	35	01/03/90	1140		1000	0	7.4	W a t e r H a u l												
142 (14)	18	Lambert Ch (Off Ferry slip, Hornby I)	28	01/03/90	1340	3500-4000	500	0	7.6	W a t e r H a u l												
142 (14)	19	Lambert Ch (Hornby I Ferry landing) Spawned Out Herring are Smaller Fish	30	01/03/90	1400	3500-4000	1000	400	7.6	1	63	46	74	54	2.0	1.9	9	11	54	7	0	20.7
										2	41	35	76	65	4.5	3.5	17	20	39	8	0	
										3	47	37	79	63	3.0	2.4	12	18	49	8	3	
										avg.	50	39	76	61	3.2	2.6	13	16	47			
142 (14)	20	Hornby I (0.5mi off Phipps Pt)	20	01/03/90	1740	3500-4000	100	10	7.7	1	42	35	78	65	4.5	3.5	19	17	42	1	2	21.2
										2	44	38	72	62	4.5	3.6	19	18	35	7	1	
										3	39	33	81	67	4.0	3.0	17	17	47	2	0	
										avg.	42	35	77	65	4.3	3.4	18	17	41			
142 (14)	21	Deep Bay (Deephole)	38	02/03/90	0400	8000	skimmer	125	6.3	1	55	39	86	61	2.5	2.0	49	9	58	0	4	19.8
										2	69	48	75	52	3.0	2.9	18	1	56	1	4	
										3	69	47	77	53	2.0	1.9	14	11	52	3	0	
										avg.	64	45	79	55	2.5	2.3	27	7	55			
142 (14)	22	Lambert Ch (Eagle Rk) * 1000 Herring Tagged	40	02/03/90	1700	8000	3000	250	7.8	1	58	45	72	55	5.8	5.2	23	6	43	0	0	21.3
										2	65	46	75	54	5.8	5.3	27	12	36	0	0	
										3	62	48	66	52	6.0	5.8	26	4	36	1	0	
										avg.	62	46	71	54	5.8	5.4	25	7	38			
142 (14)	23	Lambert Ch (Off Maude Reef) Sample is Not Representative	33	03/03/90	0745		70	10	7.1	1	55	39	87	61	1.0	0.8	4	5	78	13	0	19.4
142 (14)	24	Lambert Ch (Shingle Spit) * 1000 Herring Tagged	30	03/03/90	0900	15000	150	90	7.8	1	48	39	74	61	3.8	3.1	16	8	50	8	0	21.2
										2	47	36	82	64	4.0	3.1	19	10	53	7	0	
										3	47	38	77	62	5.8	4.6	24	17	36	7	0	
										avg.	47	38	78	62	4.5	3.6	20	12	46			
142 (14)	25	Savoie Rocks	38	03/03/90	1505		1000	70	7.7	1	46	42	63	58	4.0	3.4	16	11	36	17	0	20.5
										2	46	38	74	62	5.0	4.0	22	6	46	16	0	
										3	47	37	80	63	4.0	3.2	21	10	49	10	0	
										avg.	46	39	72	61	4.3	3.6	20	9	44			

TABLE 27 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ROYAL MARINER". STAT AREA: 13,14,15, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
142 (14)	26	W Shingle Spit	28	04/03/90	0740	20000	skimmer	70	7.6	1	44	37	74	63	1.8	1.4	11	15	48	19	0	21.1
										2	44	36	78	64	1.8	1.4	9	19	50	8	0	
										3	46	38	74	62	2.5	2.0	15	16	43	12	0	
										avg.	45	37	75	63	2.0	1.6	12	17	47			
142 (14)	27	Lambert Ch (Off Shingle Spit)	30	04/03/90	1055	20000	100	80	7.3	1	37	29	91	71	3.0	2.1	17	10	64	26	0	20.5
										2	45	35	84	65	2.5	1.9	15	14	55	22	2	
										3	50	41	72	59	2.5	2.1	14	14	44	25	0	
										avg.	44	35	82	65	2.7	2.1	15	13	54			
142 (14)	28	Fillongley Park (0.75mi off)	24	05/03/90	0620		skimmer	2	7.2	1	43	40	65	60	11.0	9.2	45	14	6	19	0	21.1
										2	41	42	57	58	10.5	9.1	45	8	4	36	0	
										3	43	44	55	56	10.0	8.9	40	4	11	25	1	
										4	42	38	69	62	11.0	8.9	49	11	9	22	2	
										avg.	42	41	62	59	10.6	9.0	45	9	8			
142 (14)	29	Whalebone Pt	20	05/03/90	1045		skimmer	15	7.9	1	38	43	51	57	1.0	0.9	7	19	25	49	0	20.5
										2	40	37	67	63	1.0	0.8	6	28	33	34	0	
										avg.	39	40	59	60	1.0	0.8	7	24	29			
142 (14)	30	Lambert Ch (Off Maude Reef)	30	05/03/90	1625	20000		50	7.9	1	40	39	63	61	0.0	0.0	2	17	44	52	2	20.1
										2	38	41	55	59	0.0	0.0	1	16	38	47	0	
										avg.	39	40	59	60	0.0	0.0	2	17	41			
142 (14)	31	Lambert Ch (Off Shingle Spit)	32	06/03/90	0715		L skimmer	25	7.6	1	42	44	54	56	2.0	1.8	13	14	27	53	0	20.1
										2	42	42	58	58	1.5	1.3	8	19	31	47	0	
										3	40	43	53	57	1.5	1.3	7	4	42	56	0	
										avg.	41	43	55	57	1.7	1.5	9	12	33			
142 (14)	32	Lambert Ch (Off Savoie Rks and Maude I)	28	06/03/90	1025	10000	100	35	7.7	1	44	47	50	53	4.2	4.0	25	6	19	37	0	20.8
										2	46	47	51	53	5.0	4.7	23	12	16	49	0	
										3	51	48	56	52	6.0	5.8	28	13	15	19	0	
										4	39	37	67	63	7.0	5.6	30	14	23	20	0	
										5	53	48	57	52	5.8	5.6	30	11	16	19	0	
										avg.	47	45	56	55	5.6	5.1	27	11	18			
142 (14)	33	Lambert Channel (Eagle Rks)	40	07/03/90	0855	10000	30	30	7.4	1	65	47	74	53	10.0	9.4	53	16	5	12	0	20.0
										2	58	44	73	56	12.0	10.7	59	12	2	19	0	
										3	48	40	72	60	11.8	9.8	54	7	11	25	0	
										4	53	41	77	59	10.0	8.5	55	15	7	17	0	
										5	49	41	71	59	9.8	8.3	51	13	7	31	0	
										6	47	39	72	61	9.3	7.6	51	9	12	15	0	
										avg.	53	42	73	58	10.5	9.1	54	12	7			

TABLE 27 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ROYAL MARINER". STAT AREA: 13,14,15, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Wt.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
142 (14)	34	Hornby I (0.5mi off Phipps Pt)	26	08/03/90	1040		20	0	7.5	W a t e r H a u l												
142 (14)	35	Lambert Ch (btwn Fords Cove and Norman Pt)	53	10/03/90	1640	700	70	0	8.2	W a t e r H a u l												
142 (14)	36	Lambert Ch (Maude Reef)	30	10/03/90	1800	700	250	90	8.4	1	39	57	30	43	2.3	2.7	15	1	14	99	0	19.7
										2	36	52	33	48	3.0	3.1	18	2	13	101	0	
										3	32	41	46	59	4.0	3.4	27	3	16	98	0	
										avg.	36	50	36	50	3.1	3.1	20	2	14			
142 (14)	37	French Creek (0.75mi E Break Water)	65	11/03/90	1405		20	0	8.0	W a t e r H a u l												
143 (14)	38	Parksville Bay	20	11/03/90	1535	1500	75	75	8.3	1	75	49	79	51	10.5	10.3	64	2	13	2	0	19.5
										2	82	51	78	49	9.5	9.7	65	2	11	4	0	
										3	103	60	68	40	7.5	9.4	53	2	13	8	0	
										4	86	59	60	41	9.3	11.3	51	1	8	8	0	
										avg.	87	55	71	45	9.2	10.2	58	2	11			
143 (14)	39	Craig Bay (S side)	40	12/03/90	0850	1550	60	60	7.4	1	74	46	87	54	10.8	10.0	73	2	12	15	0	19.5
										2	79	55	65	45	9.0	10.0	57	1	7	11	0	
										3	86	52	78	48	10.0	10.4	68	2	8	14	0	
										avg.	80	51	77	49	9.9	10.1	66	2	9			
172 (17)	40	Lantzville (Blundon Pt)	22	12/03/90	1543	500	125	75	8.2	1	61	47	69	53	12.8	12.0	63	2	4	3	0	19.9
										2	75	51	72	49	12.0	12.2	66	3	3	1	0	
										3	69	48	75	52	12.0	11.5	68	0	7	0	0	
										4	80	53	71	47	10.0	10.6	59	4	8	1	0	
										avg.	71	50	72	50	11.7	11.6	64	2	6			
142 (14)	41	Shingle Spit	32	16/03/90	1006	2000	100	0	8.2	W a t e r H a u l												
142 (14)	42	Shingle Spit	25	16/03/90	1042	2000	1000	175	8.1	1	70	59	49	41	10.8	13.1	46	0	3	21	0	20.7
										2	67	51	64	49	12.5	12.8	63	0	1	13	0	
										3	57	46	67	54	13.5	12.5	63	2	2	19	0	
										4	68	51	66	49	11.5	11.7	62	0	4	22	0	
										avg.	66	52	62	48	12.1	12.5	59	1	3			
142 (14)	43	Lambert Ch (Btwn Chrome Is and Norris Rks)	65	16/03/90	1910	1000	50	30	8.6	1	7	44	9	56	0.0	0.0	0	0	9	181	20	19.1
142 (14)	44	Metcalf Bay	28	18/03/90	1418	200	40	0.25	8.6	1	88	58	65	42	0.8	1.0	10	1	54	21	55	18.1

TABLE 27 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ROYAL MARINER". STAT AREA: 13,14,15, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
141 (14)		Williams Beach		14/03/90		Gillnet Fishery Sample				1	17	18	76	82	16.0	9.8	72	3	1	18	0	21.5
										2	26	29	65	71	14.3	10.0	63	0	2	23	0	
										avg.	22	24	71	77	15.1	9.9	68	2	2			
141 (14)		Williams Beach		14/03/90		Gillnet Fishery Sample				1	24	26	68	74	15.0	10.1	65	2	1	7	0	21.8
										2	15	39	23	61	3.8	3.1	17	3	3	63	0	
										3	26	33	53	67	10.0	7.5	46	6	1	30	0	
										avg.	22	33	48	67	9.6	6.9	43	4	2			
142 (14)		Seal Bay		14/03/90		Gillnet Fishery Sample				1	40	48	43	52	8.0	7.7	34	5	4	18	0	22.5
										2	36	47	41	53	7.5	7.1	34	4	3	30	0	
										3	32	35	59	65	11.0	8.5	49	7	3	17	0	
										4	29	37	50	63	8.0	6.3	40	7	3	29	0	
										avg.	34	42	48	58	8.6	7.4	39	6	3			
142 (14)		Seal Bay		14/03/90		Gillnet Fishery Sample				1	29	31	65	69	11.0	8.0	52	4	9	20	0	22.1
										2	23	40	35	60	6.5	5.4	30	1	4	47	0	
										3	19	27	51	73	9.0	6.2	41	8	2	39	0	
										4	35	38	56	62	9.8	7.9	46	8	2	23	0	
										avg.	27	34	52	66	9.1	6.9	42	5	4			

TABLE 28. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ROYAL MARINER". STAT AREA: 13,14,15, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
142 (14)	1	Baynes Sd	30	20/02/90 1900	1						6	9	22	21	19	14	11					102	20.7	19.0	15
142 (14)	2	Baynes Sd	22	21/02/90 0550	2						5	13	17	18	27	13	4					97	20.6	19.0	18
152 (15)	3	Powell River	26	21/02/90 1358	3					3	10	29	24	16	3	2	1					88	19.2	19.0	51
152 (15)	4	Powell River	48	22/02/90					Water Haul																
152 (15)	5	Powell River	30	22/02/90 0758	4						16	22	31	13	9	3	5					99	19.6	19.0	38
152 (15)	6	Powell River	35	22/02/90 1157					Water Haul																
152 (15)	7	Powell River	22	22/02/90 1247	5					1	6	21	23	28	17	4						100	19.9	19.0	28
152 (15)	8	Powell River	30	23/02/90 1127	6					2	7	16	27	19	14	11	4	1	1			102	20.2	19.0	25
132 (13)	9	Deepwater Bay	30	24/02/90 0617	7					7	19	23	29	12	6	1						97	18.9	19.0	49
152 (15)	10	Powell River	30	25/02/90 1010	8					1	7	31	23	17	13	8	1					101	19.7	19.0	39
152 (15)	11	Powell River	30	26/02/90 1346	9					2	13	27	16	20	14	9	7	0	1			109	20.0	19.0	42
142 (14)	12	Deep Bay	28	27/02/90 0625					Water Haul																
142 (14)	13	Lambert Ch	38	27/02/90 1034	10						2	3	7	12	28	39	7	3				101	21.7	19.0	5
142 (14)	14	Baynes Sd	40	27/02/90 1908	11			1	3	5	9	12	16	22	23	6	1					98	20.8	19.0	18
152 (15)	15	Powell River	28	28/02/90 1630	12					3	16	23	37	16	6							101	19.1	19.0	42
142 (14)	16	Lambert Ch	27	01/03/90 1055					Water Haul																
142 (14)	17	Lambert Ch	35	01/03/90 1140					Water Haul																
142 (14)	18	Lambert Ch	28	01/03/90 1340					Water Haul																
142 (14)	19	Lambert Ch	30	01/03/90 1400	13					1	11	8	16	20	16	18	8	1	1			100	20.7	19.0	20
142 (14)	20	Hornby I	20	01/03/90 1740	14					1	4	3	16	19	19	26	12					100	21.2	19.0	8
142 (14)	21	Deep Bay	38	02/03/90 0400	15		1	0	3	14	13	18	27	15	9	1						101	19.8	19.0	31
142 (14)	22	Lambert Ch	40	02/03/90 1700	16						4	6	9	20	21	30	8	2				100	21.3	19.0	10
142 (14)	23	Lambert Ch	33	03/03/90 0745	17			1	5	12	23	26	17	6	8	1						99	19.4	19.0	41
142 (14)	24	Lambert Ch	30	03/03/90 0900	18						3	5	11	27	21	19	9	4				99	21.2	19.0	8
142 (14)	25	Savoie Rocks	38	03/03/90 1505	19						3	18	22	19	17	14	5	2				100	20.5	19.0	21

TABLE 28 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ROYAL MARINER". STAT AREA: 13,14,15, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
142 (14)	26	Shingle Spit	28	04/03/90	0740	20							4	9	18	12	23	29	8	2				105	21.1	19.0	13
142 (14)	27	Shingle Spit	30	04/03/90	1055	21					1	2	2	13	25	17	18	17	6					101	20.5	19.0	18
142 (14)	28	Fillongley Park	24	05/03/90	0620	22							5	6	12	25	16	25	10	2				101	21.1	19.0	11
142 (14)	29	Whalebone Pt	20	05/03/90	1045	23						2	4	14	23	23	17	11	6	2	1			103	20.5	19.0	20
142 (14)	30	Lambert Ch	30	05/03/90	1625	24						3	11	9	28	24	12	8	3	3				101	20.1	19.0	23
142 (14)	31	Lambert Ch	32	06/03/90	0715	25						2	8	15	24	23	13	10	4					99	20.1	19.0	25
142 (14)	32	Lambert Ch	28	06/03/90	1025	26							3	12	12	29	24	16	5					101	20.8	19.0	15
142 (14)	33	Lambert Ch	40	07/03/90	0855	27					1	2	6	19	24	28	13	6	6					105	20.0	19.0	28
142 (14)	34	Hornby I	26	08/03/90	1040					W	a	t	e	r		H	a	u	l								
142 (14)	35	Lambert Ch	53	10/03/90	1640					W	a	t	e	r		H	a	u	l								
142 (14)	36	Lambert Ch	30	10/03/90	1800	28						1	12	21	26	21	13	4	2	1				101	19.7	19.0	34
143 (14)	37	French Creek	65	11/03/90	1405					W	a	t	e	r		H	a	u	l								
143 (14)	38	Parksville Bay	20	11/03/90	1535	29							8	27	32	22	6	3	1					99	19.5	19.0	35
143 (14)	39	Craig Bay	40	12/03/90	0850	30						2	9	29	26	23	4	5	2					100	19.5	19.0	40
172 (17)	40	Lanzville	22	12/03/90	1543	31					2	1	6	17	28	22	16	3	4	1				100	19.9	19.0	26
142 (14)	41	Shingle Spit	32	16/03/90	1006					W	a	t	e	r		H	a	u	l								
142 (14)	42	Shingle Spit	25	16/03/90	1042	32						1	2	16	21	16	18	17	9					100	20.7	19.0	19
142 (14)	43	Lambert Ch	65	16/03/90	1910	33			1	2	3	18	17	33	19	5	2							100	19.1	19.0	41
142 (14)	44	Metcalf Bay	28	18/03/90	1418	34	1	0	5	6	13	22	21	13	15	4								100	18.1	19.0	68
141 (14)		Williams Beach		14/03/90		Gillnet Fishery Sample										19	18	11	3					51	21.5	19.0	0
141 (14)		Williams Beach		14/03/90		Gillnet Fishery Sample										1	20	19	8	1				49	22.3	19.0	0
142 (14)		Seal Bay		14/03/90		Gillnet Fishery Sample										6	18	48	22	6				100	22.5	19.0	0
142 (14)		Seal Bay		14/03/90		Gillnet Fishery Sample										13	27	47	13					100	22.1	19.0	0

TABLE 29. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
172 (17)	1	Snake I (0.75mi SE)	44	23/02/90	1856	7000	3000	150	6.6	1	67	49	70	51	0.0	0.0	1	1	68	0	1	20.3
* 250 Herring Tagged																						
173 (17)	2	Northumberland (0.25mi W Harmac Mill)	47	23/02/90	2119	250	250	100	7.5	1	91	56	72	44	0.0	0.0	2	0	70	0	3	19.5
* 750 Herring Tagged																						
172 (17)	3	Snake I (1mi NE)	44	24/02/90	0548	7000	skimmer	300	6.5	1	78	52	72	48	0.0	0.0	1	2	69	0	3	19.1
* 8 Herring Tagged																						
181 (18)	4	Prevost I (0.5mi NW Peile Pt)	45	25/02/90	0516	1000	skimmer	100	7.3	1	59	45	73	55	1.0	0.9	8	10	55	0	0	20.3
* 484 Herring Tagged																						
181 (18)	5	Crocker Pt (0.5mi S)	49	25/02/90	1912	700	300	50	7.1	1	85	56	67	44	0.0	0.0	0	2	65	0	5	19.1
* 743 Herring Tagged																						
181 (18)	6	Crocker Pt (1mi S)	45	26/02/90	0549	700	300	75	7.2	1	91	58	65	42	0.0	0.0	0	0	65	0	3	19.2
* 250 Herring Tagged																						
181 (17)	7	Phillimore Pt (0.5mi W)	28	26/02/90	1910	1000	skimmer	100	7.4	1	81	52	75	48	0.0	0.0	0	1	74	0	7	18.8
* 995 Herring Tagged																						
181 (18)	8	Peile Pt (0.25mi NW)	42	27/02/90	0517	2000	skimmer	80	7.0	1	76	57	58	43	1.0	1.2	8	9	41	0	0	20.1
* 996 Herring Tagged																						
172 (17)	9	Snake I (1mi NE)	62	27/02/90	1851	7000	skimmer	80	6.5	1	82	52	77	48	0.0	0.0	1	1	75	0	1	19.4
* 993 Herring Tagged																						
172 (17)	10	Snake I (0.5mi NE)	71	28/02/90	0520	7000	skimmer	100	6.8	1	67	48	72	52	0.5	0.5	5	4	63	0	0	19.6
* 1497 Herring Tagged																						
172 (17)	11	Snake I (0.75mi E)		01/03/90	0524	10000+	350	150	6.0	1	63	48	69	52	0.0	0.0	5	8	56	0	1	20.1
* 1000 Herring Tagged																						
173 (17)	12	Pylades I (1mi NE)	34	01/03/90	0922	400	75	25	6.2	1	68	65	36	35	3.0	4.3	16	8	12	0	0	21.3
										2	56	52	51	48	5.5	5.7	23	15	13	0	0	
										3	64	58	46	42	6.0	7.1	24	8	14	0	0	
										avg.	63	58	44	42	4.8	5.7	21	10	13			

TABLE 29 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
173 (17)	13	Pylades Ch (0.5mi N Ruxton I)	26	01/03/90	1843	675	skimmer	100	7.5	1	87	63	52	37	4.5	6.1	26	13	13	0	0	20.1
										2	79	54	66	46	4.0	4.3	26	22	18	0	0	
* 749 Herring Tagged										3	71	53	62	47	5.0	5.3	25	16	21	0	0	
										avg.	79	57	60	43	4.5	5.2	26	17	17			
173 (17)	14	Pylades Ch (0.75mi S Gabriola Pass)	30	02/03/90	0710	675	skimmer		7.5	W a t e r H a u l												
173 (17)	15	Pylades Ch (0.75mi S Gabriola Pass)	31	02/03/90	0823	675	100	0	7.5	W a t e r H a u l												
173 (17)	16	Pylades Ch (0.75mi S Gabriola Pass)	30	02/03/90	1137		75	0	7.5	W a t e r H a u l												
173 (17)	17	Pylades Ch (0.75mi S Gabriola Pass)	28	02/03/90	1329	700	75	75	7.7	1	64	53	56	47	8.0	8.5	39	7	10	0	0	20.7
										2	64	54	55	46	8.5	9.2	41	3	11	0	0	
* 500 Herring Tagged										3	63	52	58	48	7.0	7.3	34	11	13	0	0	
										avg.	64	53	56	47	7.8	8.3	38	7	11			
181 (17)	18	Prevost I (0.5mi NW Peile Pt)	46	02/03/90	1856	3000	skimmer	125	7.5	1	76	58	54	42	4.0	4.8	21	9	24	0	0	20.2
										2	67	52	63	48	5.5	5.7	26	4	33	2	0	
* 750 Herring Tagged										3	78	60	53	40	2.5	3.1	14	10	29	0	0	
										avg.	74	57	57	43	4.0	4.5	20	8	29			
172 (17)	19	Snake I (0 75mi NE)	61	03/03/90	1905	10000	skimmer	150	7.4	1	81	48	88	52	1.0	1.0	11	8	69	2	0	18.9
										2	74	46	86	54	1.0	0.9	11	5	70	5	2	
										3	83	53	73	47	0.5	0.5	5	5	63	4	0	
										avg.	79	49	82	51	0.8	0.8	9	6	67			
143 (14)	20	NW Mistaken I (0.25mi N)	80	04/03/90	0938	1500	100	100	7.1	1	47	46	55	54	7.0	6.5	27	7	21	2	2	20.7
										2	56	51	53	49	7.5	7.7	36	5	12	4	0	
										3	58	48	64	52	6.0	5.8	31	12	21	3	2	
										avg.	54	48	57	52	6.8	6.6	31	8	18			
143 (14)	21	French Creek (0.75mi NW of Breakwater)	35	04/03/90	1513	3300	100	0	7.3	W a t e r H a u l												
143 (14)	22	French Creek (0.75mi NW of Breakwater)	35	04/03/90	1544	3300	100	50	7.3	1	63	50	62	50	5.0	5.0	27	7	28	4	0	20.1
										2	69	49	72	51	4.5	4.4	29	11	32	7	0	
										3	74	51	71	49	3.5	3.6	26	10	35	5	0	
										avg.	69	50	68	50	4.3	4.3	27	9	32			

TABLE 29 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Wt.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
152 (15)	23	Powell River (0.5mi W of Millsite)	41	05/03/90	0607	5000-6000	1000	100	6.8	1	69	45	85	55	2.5	2.3	22	2	61	0	8	19.2
										2	64	44	81	56	1.5	1.3	14	4	63	0	9	
										avg.	67	45	83	56	2.0	1.8	18	3	62			
152 (15)	24	Powell River (0.25mi NW Westview Marina)	30	05/03/90	0910	5000-6000	300	200	7.0	1	72	50	73	50	0.5	0.5	11	3	59	0	5	18.6
										2	99	52	90	48	0.8	0.8	16	9	65	0	4	
										avg.	86	51	82	49	0.7	0.7	14	6	62			
142 (14)	25	Comox Harbour (1mi E)	20	05/03/90	1351	1000	400	200	7.2	1	65	61	41	39	10.5	13.5	39	0	2	0	3	21.5
										2	70	60	46	40	10.5	13.1	41	5	0	1	3	
										3	53	45	66	55	14.5	13.2	61	1	4	0	1	
										avg.	63	55	51	45	11.8	13.3	47	2	2			
143 (14)	26	Mistaken I (Midway btwn Darcas Pt)	35	06/03/90	1725	250	100	0	7.1	W a t e r H a u l												
172 (17)	27	Snake I (0.75mi off Tinson Pt)	60	07/03/90	0544	10000	5000	80	6.9	1	75	49	78	51	3.8	3.7	33	10	35	0	0	18.7
										2	115	62	70	38	2.0	2.6	21	7	42	0	2	
										avg.	95	56	74	45	2.9	3.2	27	9	39			
172 (17)	28	Lagoon Head (0.5mi NE)	33	07/03/90	1758	500	75	0	7.0	W a t e r H a u l												
173 (17)	29	Boat Harbour (0.5mi SE)	35	08/03/90	1850	300	100	80	7.8	1	65	54	56	46	8.5	9.2	49	4	3	0	0	20.2
										2	57	46	68	54	12.0	11.1	59	5	4	0	1	
										3	61	47	69	53	10.0	9.4	56	11	2	0	0	
										avg.	61	49	64	51	10.2	9.9	55	7	3			
172 (17)	30	Newcastle I (0.75mi NE Protection I)	55	10/03/90	0851	1500	500	300	6.8	1	60	50	59	50	8.0	8.0	49	4	6	5	5	19.7
										2	81	61	52	39	7.5	9.6	43	3	6	8	1	
										3	60	48	64	52	7.5	7.2	50	7	7	12	0	
										avg.	67	53	58	47	7.7	8.3	47	5	6			
173 (17)	31	Boat Harbour (0.75mi E)	32	10/03/90	1926	400	300	150	6.9	1	58	46	67	54	11.0	10.2	59	3	5	1	0	20.2
										2	55	40	83	60	14.5	12.1	72	2	9	0	0	
										3	60	44	77	56	12.5	11.2	70	2	5	0	0	
										avg.	58	43	76	57	12.7	11.1	67	2	6			
173 (17)	32	Dodd Narrows (0.75mi NW)	40	11/03/90	0456	2000	2000	200	7.9	1	77	55	64	45	6.5	7.2	50	7	7	12	3	18.9
										2	73	52	67	48	6.5	6.8	51	4	12	11	2	
										3	64	48	70	52	7.0	6.7	57	5	8	22	4	
										avg.	71	52	67	48	6.7	6.9	53	5	9			

TABLE 29 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
172 (17)	33	Jack Pt (0.5mi E)	65	11/03/90	2011	1500	200	150	7.7	1	54	48	59	52	8.0	7.7	50	5	4	16	0	20.2
										2	63	53	55	47	7.5	8.0	44	5	6	22	0	
										3	64	54	54	46	7.5	8.2	41	8	5	23	0	
										avg.	60	52	56	48	7.7	7.9	45	6	5			
173 (17)	34	SE Dodd Narrows (0.24mi W De Courcy I)	35	12/03/90	2051	2500	800	200	7.5	1	69	55	57	45	9.0	10.0	55	2	0	1	0	20.4
										2	53	42	73	58	12.0	10.3	63	7	3	0	0	
										3	57	47	65	53	10.0	9.4	56	3	6	0	0	
										avg.	60	48	65	52	10.3	9.9	58	4	3			
173 (17)	35	Boat Harbour (0.625mi E)	35	13/03/90	0557	3000	100	25	7.9	1	65	51	63	49	10.5	10.7	54	2	7	1	0	20.1
										2	54	45	65	55	10.5	9.5	57	3	5	1	0	
										3	68	52	64	48	10.5	10.9	52	9	3	1	0	
										avg.	62	49	64	51	10.5	10.4	54	5	5			
172 (17)	36	Nanoose Entrance (0.5mi SE WallisPt.)	24	14/03/90	1425	800	100	30	7.9	1	82	59	56	41	8.5	10.4	53	2	1	8	0	19.4
										2	84	55	69	45	10.0	11.1	64	2	3	6	0	
										3	70	52	64	48	10.5	10.9	62	0	2	6	0	
										avg.	79	55	63	45	9.7	10.8	60	1	2			
173 (17)	37	Yellow Pt (1mi N)	39	15/03/90	0543	4000	200	100	7.5	1	64	52	59	48	9.5	9.9	53	3	3	2	0	20.5
										2	63	43	84	57	12.0	10.5	69	7	8	3	0	
										3	64	48	69	52	11.5	11.1	66	1	2	4	0	
										avg.	64	48	71	52	11.0	10.5	63	4	4			
172 (17)	38	Neck Pt (0.75mi W, 0.5mi off Beach)	55	15/03/90	1652	1500	100	0	8.2	W a t e r H a u l												
172 (17)	39	Neck Pt (0.75mi W, 0.5mi off Beach)	68	15/03/90	1732	1500	200		8.4	W a t e r H a u l												
172 (17)	40	Blunden Pt. (1mi E)	23	15/03/90	1935	1500	75	30	8.2	1	38	40	58	60	9.5	7.9	54	1	3	57	0	20.0
										2	39	46	45	54	6.0	5.6	41	2	2	67	0	
										3	44	47	50	53	7.5	7.1	47	1	2	51	0	
										avg.	40	44	51	56	7.7	6.8	47	1	2			
173 (17)	41	Pylades Ch (0.25mi N Ruxton Pass)	32	16/03/90	1056	800	200	30	7.8	1	86	58	63	42	9.0	10.7	59	4	0	5	0	19.9
										2	72	51	69	49	11.5	11.7	63	4	2	3	0	
										3	79	54	66	46	9.0	9.8	59	3	4	2	0	
										avg.	79	54	66	46	9.8	10.7	60	4	2			

TABLE 29 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
173 (17)	42	Stuart Ch (0.5mi N Boat Harbour)	37	17/03/90	0459	10000-15000	skimmer	30	8.0	1	85	54	72	46	10.0	10.9	66	3	3	4	0	19.7
										2	63	50	64	50	11.0	11.0	62	2	0	1	0	
										3	59	48	65	52	11.0	10.6	63	2	0	3	1	
										avg.	69	51	67	49	10.7	10.8	64	2	1			
173 (17)	43	Stuart Ch (0.5mi S Ruxton Pass)	35	17/03/90	1100	12500	100	0	8	W a t e r H a u l												
173 (17)	44	Stuart Ch (Mid Boat H. & De Courcy I)	36	17/03/90	1932	10000-15000	300	150	8.2	1	62	46	73	54	12.0	11.1	69	2	2	3	0	19.9
										2	79	55	64	45	11.0	12.2	63	1	0	2	0	
										3	64	47	72	53	11.0	10.4	65	4	3	4	0	
										avg.	68	49	70	51	11.3	11.2	66	2	2			
173 (17)	45	Stuart Ch (0.75mi NE Coffin Pt)	36	18/03/90	1118	10000-15000	500	250	8.3	1	65	47	72	53	12.5	11.8	71	0	1	1	0	20.3
										2	88	61	56	39	10.3	13.2	56	0	0	0	0	
										3	74	52	69	48	12.5	13.0	69	0	0	3	0	
										avg.	76	53	66	47	11.8	12.7	65	0	0			
173 (17)	46	Northumberland (NW of Harmac, end of booms)	60	20/03/90	1900	2000-3000	2000-3000	100	8.0	1	74	44	95	56	12.0	10.7	92	1	2	17	0	19.1
										2	76	48	81	52	10.0	9.6	75	5	1	19	0	
										3	84	50	83	50	9.5	9.5	73	6	4	24	0	
										avg.	78	47	86	53	10.5	9.9	80	4	2			
173 (17)	47	Stuart Ch (3km SW link De Courcy gap)	32	21/03/90	0545	7000-8000	skimmer	75	8.1	1	60	44	75	56	13.8	12.3	74	0	1	3	0	19.5
										2	61	40	91	60	15.0	12.5	90	1	0	3	0	
										3	69	45	84	55	13.5	12.3	80	2	2	1	0	
										avg.	63	43	83	57	14.1	12.3	81	1	1			
173 (17)	48	Stuart Ch (0.75mi SW Coffin I)	27	21/03/90	1215	1000-1500	75	75	8.8	1	52	45	63	55	15.8	14.3	63	0	0	0	0	20.4
										2	47	36	84	64	17.0	13.3	84	0	0	2	0	
										3	56	39	87	61	15.5	12.7	85	2	0	3	0	
										avg.	52	40	78	60	16.1	13.4	77	1	0			
143 (14)		Englishman River		22/03/90		Gillnet Fishery Sample				1					16.0							
										2					14.5							
										3					11.5					1		
143 (14)		Parksville Bay (Englishman River)		22/03/90	1310	Gillnet Fishery Sample				1	51	54	44	46	12.0	13.0	44	0	0	0	0	
										2	40	55	33	45	7.0	7.8	33	0	0	26	0	
										avg.	46	55	39	46	9.5	10.4	39	0	0			

TABLE 29 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Wt.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
143 (14)		Nile Cr		12/03/90		Gillnet	Fishery	Sample		1	43	44	54	56	12.5	11.2	51	3	0	10	0	22.0
										2	50	53	45	47	10.0	10.6	45	0	0	11	0	
										avg.	47	49	50	52	11	11	48	2	0			
143 (14)		Parksville Bay (Midway btwn French Cr)		22/03/90	1320	Gillnet	Fishery	Sample		1	44	46	52	54	10.0	9.3	50	1	1	13	0	21.2
143 (14)		Parksville Bay (Midway btwn French Cr)		22/03/90	1315	Gillnet	Fishery	Sample		1			3		13.0			3	0	0	0	21.7
143 (14)		French Cr (Breakwater)		22/03/90		Gillnet	Fishery	Sample		1					14.0			0	0	0	0	21.5
173 (17)		Coffin Pt		22/03/90		Gillnet	Fishery	Sample		1	38	43	50	57	15.0	13.2	50	0	0	0	0	22.3
173 (17)		Coffin Pt (Boat Ramp)		22/03/90		Gillnet	Fishery	Sample		1	34	34	66	66	18.0	13.6	66	0	0	0	0	22.0
173 (17)		Coffin Pt (S of Boat Ramp)		22/03/90		Gillnet	Fishery	Sample		1	40	39	63	61	15.5	12.7	63	0	0	0	0	21.9
173 (17)		Kulleet Bay		23/03/90		Gillnet	Fishery	Sample		1					17.0							22.1
173 (17)		Kulleet Bay				Gillnet	Fishery	Sample		1					14.0			0	0	0	0	
173 (17)		Sharpe Pt		23/03/90		Gillnet	Fishery	Sample		1	36	40	54	60	14.5	12.1	54	0	0	0	0	22.0
173 (17)		Kulleet Bay (S Nelson Pt)		23/03/90		Gillnet	Fishery	Sample		1	28	34	55	66	16.0	12.1	55	0	0	0	0	22.4
173 (17)		Kulleet Bay (SW corner of Head)		23/03/90		Gillnet	Fishery	Sample		1	39	44	49	56	12.7	11.3	49	0	0	0	0	21.9

TABLE 30. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
172 (17)	1	Snake I	44	23/02/90	1856	1				1	0	3	13	26	30	14	10	3					100	20.3	19.0	17
173 (17)	2	Northumberland	47	23/02/90	2119	2				2	11	13	13	19	23	10	5	3	0	1			100	19.5	19.0	39
172 (17)	3	Snake I	44	24/02/90	0548	3				5	6	10	33	21	13	6	5	2	1				102	19.1	19.0	54
181 (18)	4	Prevost I	45	25/02/90	0516	4				2	3	4	10	15	30	24	9	3					100	20.3	19.0	19
181 (18)	5	Crocker Pt	49	25/02/90	1912	5				1	5	15	24	38	14	4	2						103	19.1	19.0	46
181 (18)	6	Crocker Pt	45	26/02/90	0549	6					5	13	28	32	13	5	2	1	1				100	19.2	19.0	46
181 (17)	7	Phillimore Pt	28	26/02/90	1910	7					11	15	26	37	7	2	2						100	18.8	19.0	52
181 (18)	8	Peile Pt	42	27/02/90	0517	8					3	12	12	22	16	19	13	1	1	1			100	20.1	19.0	27
172 (17)	9	Snake I	62	27/02/90	1851	9				2	2	7	32	28	15	8	4	2					100	19.4	19.0	31
172 (17)	10	Snake I	71	28/02/90	0520	10			1	0	5	7	18	25	27	13	4						100	19.6	19.0	31
172 (17)	11	Snake I		01/03/90	0524	11					6	4	17	18	34	7	5	8	1				100	20.1	19.0	8
173 (17)	12	Pylades I	34	01/03/90	0922	12						1	7	14	20	23	22	8	5				100	21.3	19.0	8
173 (17)	12	Pylades I	34	01/03/90	0922	13				1	3	6	16	22	25	13	8	5	1				100	20.1	19.0	26
173 (17)	14	Pylades Ch	30	02/03/90	0710			W	a	t	e	r		H	a	u	l									
173 (17)	15	Pylades Ch	31	02/03/90	0823			W	a	t	e	r		H	a	u	l									
173 (17)	16	Pylades Ch	30	02/03/90	1137			W	a	t	e	r		H	a	u	l									
173 (17)	17	Pylades Ch	28	02/03/90	1329	14					3	8	9	15	21	16	16	11	1				100	20.7	19.0	20
181 (17)	18	Prevost I	46	02/03/90	1856	15					3	8	11	26	21	16	9	5	1				100	20.2	19.0	22
172 (17)	19	Snake I	61	03/03/90	1915	16				1	1	23	30	28	15	3	1						102	18.9	19.0	54
143 (14)	20	Mistaken I	80	04/03/90	0938	17				1	2	6	8	13	32	15	9	11	3				100	20.7	19.0	17
143 (14)	21	French Creek	35	04/03/90	1513			W	a	t	e	r		H	a	u	l									
143 (14)	22	French Creek	35	04/03/90	1544	18					4	3	8	37	26	15	3	3	1				100	20.1	19.0	15
152 (15)	23	Powell River	41	05/03/90	0607	19					2	17	31	24	13	8	1	3					99	19.2	19.0	50
152 (15)	24	Powell River	30	05/03/90	0910	20			1	3	5	20	39	19	7	5	1						100	18.6	19.0	68
142 (14)	25	Comox harbour	20	05/03/90	1351	21						1	1	12	24	22	27	13					100	21.5	19.0	2

TABLE 30 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
143 (14)	26	Mistaken I	35	06/03/90	1725				W a t e r				H a u l													
172 (17)	27	Snake I	60	07/03/90	0544	22			1	4	10	18	19	24	20	2							98	18.7	19.0	52
172 (17)	28	Lagoon Head	33	07/03/90	1758				W a t e r				H a u l													
173 (17)	29	Boat Harbour	35	08/03/90	1850	23			2	1	0	10	16	18	25	8	10	10	1				101	20.2	19.0	29
172 (17)	30	Newcastle I	55	10/03/90	0851	24				3	5	6	16	32	18	6	10	4					100	19.7	19.0	30
173 (17)	31	Boat Harbour	32	10/03/90	1926	25				1	4	5	10	23	30	11	8	8					100	20.2	19.0	20
173 (17)	32	Dodd Narrows	40	11/03/90	0456	26				3	5	21	20	30	14	2	5						100	18.9	19.0	49
172 (17)	33	Jack Pt	65	11/03/90	2011	27					3	11	15	21	24	8	17	5	2				106	20.2	19.0	27
173 (17)	34	Dodd Narrows	35	12/03/90	2051	28				2	2	4	10	16	27	17	21						99	20.4	19.0	18
173 (17)	35	Boat Harbour	35	13/03/90	0557	29			1	1	3	5	18	22	20	15	9	6					100	20.1	19.0	28
172 (17)	36	Nanoose	24	14/03/90	1425	30				1	4	14	26	24	18	6	7	0	1				101	19.4	19.0	45
173 (17)	37	Yellow Pt	39	15/03/90	0543	31				1	1	7	10	25	20	13	14	8	2				101	20.5	19.0	19
172 (17)	38	Neck Pt	55	15/03/90	1652				W a t e r				H a u l													
172 (17)	39	Neck Pt	68	15/03/90	1732				W a t e r				H a u l													
172 (17)	40	Blunden	23	15/03/90	1935	32					1	6	15	27	31	15	3	2					100	20.0	19.0	22
173 (17)	41	Pylades Ch	32	16/03/90	1056	33				1	2	10	15	26	22	16	6	2					100	19.9	19.0	28
173 (17)	42	Stuart Ch	37	17/03/90	0459	34				1	2	8	21	33	16	9	7	4					101	19.7	19.0	32
173 (17)	43	Stuart Ch	35	17/03/90	1100				W a t e r				H a u l													
173 (17)	44	Stuart Ch	36	17/03/90	1932	35					4	10	14	26	20	12	11	2	1				100	19.9	19.0	28
173 (17)	45	Stuart Ch	36	18/03/90	1118	36					1	3	16	31	13	20	8	8					100	20.3	19.0	20
173 (17)	46	Northumberland	60	20/03/90	1900	37				3	7	16	18	31	13	5	5	2					100	19.1	19.0	44
173 (17)	47	Stuart Ch	32	21/03/90	0545	38				2	2	16	23	26	14	5	8	4					100	19.5	19.0	43
173 (17)	48	Stuart Ch	27	21/03/90	1215	39					7	2	8	25	23	15	11	9					100	20.4	19.0	17
143 (14)		Englishman River		22/03/90		Gillnet Fishery Sample			No Measurements Taken																	
143 (14)		Parksville Bay		22/03/90	1310	Gillnet Fishery Sample			No Measurements Taken																	

TABLE 30 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "VAMPY I". STAT AREA: 14,15,17,18, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
143 (14)		Nile Cr		12/03/90		Gillnet Fishery Sample									5	26	48						79	22.0	19.0	0
143 (14)		Parksville Bay		22/03/90	1320	Gillnet Fishery Sample								10	39	35	23	2					109	21.2	19.0	0
143 (14)		Parksville Bay		22/03/90	1315	Gillnet Fishery Sample								1	20	46	27	6					100	21.7	19.0	0
143 (14)		French Creek		22/03/90		Gillnet Fishery Sample							1	3	24	43	24	3					98	21.5	19.0	1
173 (17)		Coffin Pt		22/03/90		Gillnet Fishery Sample									7	53	84	34					178	22.3	19.0	0
173 (17)		Coffin Pt		22/03/90		Gillnet Fishery Sample									11	35	44	9	1				100	22.0	19.0	0
173 (17)		Coffin Pt		22/03/90		Gillnet Fishery Sample								1	30	72	79	20					202	21.9	19.0	0
173 (17)		Kulleet Bay		23/03/90		Gillnet Fishery Sample								2	12	30	39	13	2				98	22.1	19.0	0
173 (17)		Kulleet Bay				Gillnet Fishery Sample								5	9	50	31	10	1				106	21.8	19.0	0
173 (17)		Sharpe Pt		23/03/90		Gillnet Fishery Sample								2	10	32	35	11					90	22.0	19.0	0
173 (17)		Kulleet Bay		23/03/90		Gillnet Fishery Sample									3	20	40	19	1				83	22.4	19.0	0
173 (17)		Kulleet Bay		23/03/90		Gillnet Fishery Sample								2	12	32	32	10					88	21.9	19.0	0

TABLE 31. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ANTE B". STAT AREA: 23, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
232 (23)	1	Lyall Pt	23	20/02/90	1420	2000	400	400	6.5	1	47	45	57	55	0.0	0.0	0	0	57	0	1	22.1
* 999 Herring Tagged																						
232 (23)	2	Forbes Is	28	21/02/90	0915	2500	100	5	6.0	1	46	52	42	48	0.0	0.0	0	0	42	0	1	22.6
232 (23)	3	Forbes I	28	21/02/90	1110	2500	150	150	6.0	1	60	55	50	45	0.0	0.0	0	0	50	0	0	22.0
* 999 Herring Tagged																						
232 (23)	4	David I	24	21/02/90	1435	1500	400	400	6.0	1	48	48	51	52	0.0	0.0	0	0	51	0	0	22.0
* 995 Herring Tagged																						
232 (23)	5	Stopper I	23	22/02/90	0930	1000	100	100	6.5	1	55	57	42	43	0.0	0.0	0	0	42	0	1	22.1
* 998 Herring Tagged																						
232 (23)	6	Robinson I (Imperial Eagle Ch)	34	23/02/90	0855	1600	100	40	7.0	1	49	49	50	51	0.0	0.0	0	1	49	0	1	22.4
* 997 Herring Tagged																						
232 (23)	7	Stopper I (South)	21	24/02/90	0815	1600	150	75	7.0	1	64	61	41	39	0.0	0.0	0	0	41	0	1	21.5
* 1000 Herring Tagged																						
232 (23)	8	Forbes I	28	24/02/90	1230	2500	100		7.0		W a t e r		H a u l									
232 (23)	9	Forbes I	28	24/02/90	1340	2500	100		7.0		W a t e r		H a u l									
232 (23)	10	Sechart Ch	31	24/02/90	1520	1000	100		7.5		W a t e r		H a u l									
232 (23)	11	Forbes I (South)	28	25/02/90	0820	2500	150	80	7.0	1	52	50	51	50	0.0	0.0	0	0	51	0	2	22.1
* 1000 Herring Tagged																						
232 (23)	12	Sechart Ch	40	25/02/90	1250	2000	300	300	7.5	1	62	58	45	42	0.0	0.0	0	6	39	0	0	21.8
* 996 Herring Tagged																						
231 (23)	13	Rainy Bay	40	25/02/90	1640	800	150	150	7.5	1	48	44	62	56	0.0	0.0	0	4	58	0	1	21.5
* 1000 Herring Tagged																						
232 (23)	14	Chrow I	29	27/02/90	0810	8000	300	150	6.5	1	48	47	55	53	0.0	0.0	0	1	54	0	0	21.7
* 998 Herring Tagged																						
233 (23)	15	Imperial Eagle (Mahk Rk)	45	27/02/90	1410	2500			7.5	1	53	50	53	50	0.0	0.0	0	5	48	0	2	21.4
232 (23)	16	Curwen I	26	28/02/90	1120	1000	200	200	7.5	1	51	57	39	43	0.0	0.0	0	5	34	0	0	22.3
232 (23)	17	Forbes I	28	28/02/90	1435	2500	300	300	8.0	1	48	53	43	47	0.0	0.0	0	6	37	0	0	22.0

TABLE 31 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ANTE B". STAT AREA: 23, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
232 (23)	18	Between Forbes (and Chrow I)	28	01/03/90	1455	1200	300	300	8.0	1	55	52	51	48	0.9	0.9	2	5	44	0	1	21.2
233 (23)	19	Swale rock	50	02/03/90	1625	400	75	40	7.7	1	53	58	38	42	1.0	1.2	5	2	31	0	0	22.1
232 (23)	20	Chrow I	37	03/03/90	0805	1000	150	100	7.5	1	54	52	49	48	3.0	3.1	14	11	24	0	2	20.9
232 (23)	21	Coaster Ch	49	03/03/90	1630					W a t e r H a u l												
232 (23)	22	Broken Group (Village Reef)	45	03/03/90	1705	800	100	30	7.8	1	47	47	52	53	4.8	4.5	17	11	24	0	1	22.3
										2	35	47	40	53	2.0	1.9	10	12	18	0	1	
										3	45	52	41	48	4.3	4.4	14	10	17	0	2	
										avg.	42	49	44	51	3.7	3.6	14	11	20			
232 (23)	23	Meares Bluff (0.5mi off)	45	04/03/90	1025	3000	200	100	7.6	1	58	58	42	42	6.3	7.4	21	8	13	0	1	21.8
										2	45	47	50	53	3.8	3.5	13	10	27	0	1	
										3	60	56	48	44	5.5	6.3	19	4	25	0	0	
										avg.	54	54	47	46	5.2	5.7	18	7	22			
232 (23)	24	Forbes I	25	04/03/90	1510					W a t e r H a u l												
232 (23)	25	E Forbes I	27	04/03/90	1545	1000	100	40	8.6	1	45	52	42	48	8.0	8.3	27	6	9	0	0	22.3
										2	38	44	49	56	13.0	11.6	40	4	5	0	0	
										3	41	48	44	52	11.5	11.1	33	2	9	0	0	
										4	50	58	36	42	7.8	9.2	22	11	3	0	0	
										avg.	44	51	43	50	10.1	10.1	31	6	7			
232 (23)	26	Mayne Bay (Richard R)	3	05/03/90	1030		200	150	8.9	1	61	66	32	34	5.0	7.4	22	3	7	0	0	21.7
										2	40	44	51	56	13.0	11.6	40	6	5	0	0	
										3	49	51	47	49	12.0	12.2	37	4	6	0	0	
										4	44	50	44	50	11.0	11.0	35	4	5	0	0	
										avg.	49	53	44	47	10.3	10.6	34	4	6			
232 (23)	27	Sechart Ch (Off Alma Russel I)	36	05/03/90	1600				8.0	W a t e r H a u l												
232 (23)	28	Sechart Ch (Off Howard Pt)	30	06/03/90	0810					W a t e r H a u l												
232 (23)	29	Sechart Ch	30	06/03/90	0835				7.9	W a t e r H a u l												

TABLE 31 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ANTE B". STAT AREA: 23, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
232 (23)	30	Sechart Ch (Off Howard Pt)	36	06/03/90	0910				7.8	W a t e r H a u l												
232 (23)	31	Sechart Ch (Off Mahk R)	45	06/03/90	1047				7.8	W a t e r H a u l												
232 (23)	32	E Sechart Ch (Off Mahk R)	42	06/03/90	1117				7.7	W a t e r H a u l												
232 (23)	33	E Spilling It	20	06/03/90	1415	3000	150	15	7.8	1	57	62	35	38	9.5	12.5	30	3	2	0	1	
										2	56	60	37	40	9.0	11.3	30	2	5	0	0	
										3	65	64	36	36	10.0	13.9	32	1	3	0	0	
										avg.	59	62	36	38	9.5	12.5	31	2	3			
232 (23)	34	E Spilling It	20	06/03/90	1505	3000	400	150	7.9	1	52	60	34	40	10.0	12.5	31	0	3	0	0	22.1
										2	58	64	32	36	9.0	12.5	27	4	1	0	0	
										3	56	62	35	38	8.0	10.5	27	3	5	0	0	
										4	53	60	36	40	10.0	12.5	33	0	3	0	0	
										avg.	55	62	34	39	9.3	12.0	30	2	3			
232 (23)	35	Sechart Ch (N of Swale Rk)	34	07/03/90	0705	1000-1500	250	250	7.6	1	49	50	49	50	12.0	12.0	37	4	8	0	0	21.7
										2	44	48	47	52	12.0	11.5	41	3	3	0	0	
										3	47	49	48	51	11.0	10.8	37	4	7	0	1	
										4	44	47	50	53	11.8	11.1	39	5	6	0	1	
										avg.	46	49	49	52	11.7	11.4	39	4	6			
232 (23)	36	S Shears I	22	07/03/90	0925		200-300	300	8.2	1	47	55	38	45	11.5	12.8	34	3	1	0	0	22.3
										2	48	54	41	46	12.3	13.4	36	2	3	0	0	
										3	41	46	48	54	12.5	11.6	41	5	2	0	0	
										4	46	49	48	51	14.5	14.2	47	1	0	0	1	
										avg.	46	51	44	49	12.7	13.0	40	3	2			
232 (23)	37	E Spilling It	20	07/03/90	1505	1000	250	250	8.1	1	41	47	46	53	13.0	12.3	43	1	2	0	0	22.2
										2	48	56	38	44	13.0	14.8	38	0	0	0	0	
										3	40	44	51	56	16.0	14.3	49	1	1	0	0	
										4	54	55	44	45	12.5	13.9	40	2	2	0	0	
										5	56	55	46	45	13.0	14.4	43	1	2	0	0	
										avg.	48	51	45	49	13.5	13.9	43	1	1			
232 (23)	38	SW Stopper I (Off Staff It)	21	08/03/90	0720	3000	300	300	6.7	1	42	49	44	51	13.0	12.7	38	2	4	0	0	22.0
										2	44	51	43	49	13.0	13.3	38	2	3	0	0	
										3	53	50	54	50	13.5	13.5	48	3	3	0	0	
										4	48	49	50	51	13.0	12.7	44	5	1	0	0	
										avg.	47	50	48	50	13.1	13.1	42	3	3			

TABLE 31 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ANTE B". STAT AREA: 23, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
232 (23)	39	E St. Ines I	21	08/03/90	1600	500			7.6	1	43	49	44	51	12.5	12.3	38	5	1	0	0	21.7
										2	46	51	45	49	13.0	13.3	40	3	2	0	0	
										3	46	52	43	48	14.0	14.6	41	0	2	0	0	
										4	53	58	39	42	13.0	15.5	37	0	2	0	0	
										avg.	47	53	43	48	13.1	13.9	39	2	2			
232 (23)	40	Stopper I	37	09/03/90	0653	15000	Lots	200	7.1	1	56	58	41	42	12.0	14.3	38	1	2	0	0	21.9
										2	42	42	57	58	15.3	13.2	48	6	3	0	0	
										3	51	50	51	50	14.0	14.0	43	5	3	0	0	
										4	45	52	41	48	12.0	12.5	35	2	4	0	0	
										avg.	49	51	48	50	13.3	13.5	41	4	3			
232 (23)	41	Chrow I (0.5 mi off)	31	10/03/90	0845	10000	500	100	7.0	1	58	53	51	47	13.8	14.6	50	0	1	0	0	21.5
										2	43	47	48	53	14.0	13.2	44	2	2	0	0	
										3	44	42	60	58	15.0	12.9	49	8	3	0	1	
										4	52	49	55	51	12.0	11.8	43	3	9	0	0	
										5	46	43	60	57	17.5	15.4	53	4	3	0	0	
										avg.	49	47	55	53	14.5	13.6	48	3	4			
232 (23)	42	N Lyall Pt	21	15/03/90	0640		150	100		1	52	49	55	51	15.5	15.2	53	0	2	0	0	
						Charter Payment				2	67	68	32	32	9.5	14.8	32	0	0	0	1	
										3	61	57	46	43	12.0	14.0	46	0	0	0	0	
										4	49	47	55	53	15.5	14.6	54	0	1	0	0	
										avg.	57	55	47	45	13.1	14.7	46	0	1			
232 (23)	43	W of Hermit I	17	14/03/90	1250	2500	400	170		1	42	43	55	57	15.0	13.2	53	2	0	0	0	
						Charter Payment				2	52	49	55	51	15.0	14.7	54	1	0	0	0	
										3	49	46	57	54	17.0	15.7	56	0	1	0	0	
								One Half Pumped		4	50	52	46	48	15.0	15.6	44	1	1	0	0	
								End Pumped		5	52	48	56	52	16.0	15.4	54	1	1	0	0	
										6	59	53	53	47	12.5	13.3	51	1	1			
										avg.	51	49	54	52	15.1	14.7	52	1	1			
232 (23)	44	E of Staff It	20	15/03/90	1630	500			7.8	1	50	54	42	46	14.0	15.2	40	0	2	0	0	
						Charter Payment			Begin Pump	2	63	70	27	30	7.5	12.5	26	0	1	0	0	
									Mid Pump	3	70	68	33	32	9.0	14.1	32	1	0	0	0	
										4	46	49	48	51	15.0	14.7	48	0	0	0	0	
										5	58	54	50	46	15.0	16.3	49	1	0	0	0	
									End Pump	6	52	48	57	52	17.0	16.3	57	0	0			
										avg.	57	57	43	43	12.9	14.9	42	0	1			

TABLE 31 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ANTE B". STAT AREA: 23, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
232 (23)	45	Forbes I (0.5 mi S)	28	16/03/90 0745	200 Charter	50 Payment	5	7.9	1	67	60	44	40	11.5	14.4	43	0	1	0	0	21.0
									2	48	46	57	54	14.0	13.0	56	0	1	0	0	
									3	57	50	56	50	13.3	13.3	54	0	2	0	0	
									4	55	50	55	50	13.0	13.0	54	0	1	0	0	
									avg.	57	52	53	49	12.9	13.4	52	0	1			
232 (23)	46	W of Wilkins It.	24	16/03/90 0945		150 Charter Payment		7.7	1	42	49	44	51	13.0	12.7	44	0	0	0	0	21.8
									2	32	36	56	64	19.0	14.8	55	0	1	0	0	
									3	50	55	41	45	14.0	15.6	40	0	1	0	0	
									4	51	51	49	49	13.0	13.3	48	1	0	0	0	
									avg.	44	48	48	52	14.8	14.1	47	0	1			
232 (23)	47	St. Ines I	24	16/03/90 1615		300 Herring Released - too many males	300	7.6	1	51	54	44	46	13.5	14.7	43	0	1	0	0	
									2	54	50	53	50	16.0	16.0	52	0	1	0	0	
									3	41	41	60	59	19.0	16.1	60	0	0	0	0	
									avg.	49	48	52	52	16.2	15.6	52	0	1			
232 (23)	48	Staff It	20	16/03/90 1815	Charter	Payment	Begin Pump Mid Pump End Pump	7.8	1	49	48	54	52	18.0	17.3	54	0	0	0	0	
									2	55	52	51	48	14.5	15.1	50	0	1	0	0	
									3	54	52	49	48	14.0	14.6	49	0	0	0	0	
									4	56	52	52	48	14.5	15.1	51	1	0	0	0	
									avg.	54	51	52	49	15.3	15.5	51	0	0			
232 (23)	49	Forbes I (S 0.5 mi off)	30	19/03/90 0750		150 Charter Payment	150		1	53	54	45	46	12.3	13.3	45	0	0	0	2	22.0
									2	49	52	45	48	12.3	12.8	44	0	1	0	0	
									3	48	48	51	52	15.3	14.7	49	1	1	0	0	
									4	53	52	48	48	12.5	13.0	48	0	0	0	0	
									avg.	51	52	47	49	13.1	13.5	47	0	1			

TABLE 32. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ANTE B". STAT AREA: 23, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
232 (23)	1	Lyall Pt	23	20/02/90	1420	1							2	4	20	20	26	20	5	3			100	22.1	19.0	2
232 (23)	2	Forbes	28	21/02/90	0915	2								2	4	23	33	28	10				100	22.6	19.0	0
232 (23)	3	Forbes I	28	21/02/90	1110	3							2	6	9	28	39	11	3	2			100	22.0	19.0	2
232 (23)	4	David I	24	21/02/90	1435	4							1	6	15	23	36	13	5		1		100	22.0	19.0	1
232 (23)	5	Stopper I	23	22/02/90	0930	5							1	8	14	21	28	23	5				100	22.1	19.0	1
232 (23)	6	Robinson I	34	23/02/90	0855	6								6	8	17	38	24	6	1			100	22.4	19.0	0
232 (23)	7	Stopper I	21	24/02/90	0815	7							9	9	16	27	26	8	5				100	21.5	19.0	9
232 (23)	8	Forbes I	28	24/02/90	1230			W a t e r					H a u l													
232 (23)	9	Forbes I	28	24/02/90	1340			W a t e r					H a u l													
232 (23)	10	Sechart Ch	31	24/02/90	1520			W a t e r					H a u l													
232 (23)	11	Forbes I	28	25/02/90	0820	8							2	11	15	13	30	18	9	2			100	22.1	19.0	2
232 (23)	12	Sechart Ch	40	25/02/90	1250	9							6	7	19	16	25	22	4	1			100	21.8	19.0	6
231 (23)	13	Rainy Bay	40	25/02/90	1640	10							4	13	27	15	22	16	2	1			100	21.5	19.0	4
232 (23)	14	Chrow I	29	27/02/90	0810	11							1	17	16	21	23	14	6	2			100	21.7	19.0	1
233 (23)	15	Imperial Eagle	45	27/02/90	1410	12							1	18	19	27	24	8	2	1			100	21.4	19.0	1
232 (23)	16	Curwen I	26	28/02/90	1120	13							2	9	7	17	30	27	8				100	22.3	19.0	2
232 (23)	17	Forbes I	28	28/02/90	1435	14							5	5	17	21	24	19	9				100	22.0	19.0	5
232 (23)	18	Forbes I	28	01/03/90	1455	15						3	9	17	23	13	21	9	4	4			103	21.2	19.0	12
233 (23)	19	Swale Rk	50	02/03/90	1625	16					1			10	10	19	33	23	4				100	22.1	19.0	1
232 (23)	20	Chrow I	37	03/03/90	0805	17						11	20	17	23	18	7	0	1				97	20.9	19.0	11
232 (23)	21	Coaster Ch	49	03/03/90	1630			W a t e r					H a u l													
232 (23)	22	Village Reef	45	03/03/90	1705	18								4	14	16	37	23	7				101	22.3	19.0	0
232 (23)	23	Hearse Bluff	45	04/03/90	1025	19					1	1	1	11	23	21	28	17	6	1			109	21.8	19.0	2
232 (23)	24	Forbes I	25	04/03/90	1510			W a t e r					H a u l													
232 (23)	25	Forbes I	27	04/03/90	1545	20							1	4	9	21	36	20	7		1		99	22.3	19.0	1

TABLE 32 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ANTE B". STAT AREA: 23, 1989.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
232 (23)	26	Mayne Bay	3	05/03/90	1030	21							2	12	20	23	25	10	8	1			101	21.7	19.0	2
232 (23)	27	Sechart Ch	36	05/03/90	1600		W a t e r						H a u l													
232 (23)	28	Sechart Ch	30	06/03/90	0810		W a t e r						H a u l													
232 (23)	29	Sechart Ch	30	06/03/90	0835		W a t e r						H a u l													
232 (23)	30	Sechart Ch	36	06/03/90	0910		W a t e r						H a u l													
232 (23)	31	Sechart Ch	45	06/03/90	1047		W a t e r						H a u l													
232 (23)	32	Sechart Ch	42	06/03/90	1117		W a t e r						H a u l													
232 (23)	33	Spilling It	20	06/03/90	1415		No Length Frequency Measurements																			
232 (23)	34	Spilling It	20	06/03/90	1505	22								9	13	26	27	18	9	1			103	22.1	19.0	0
232 (23)	35	Sechart Ch	34	07/03/90	0705	23					1	6	10	15	16	31	16	5	1				101	21.7	19.0	7
232 (23)	36	Shears I	22	07/03/90	0925	24							1	6	8	19	40	20	4	2			100	22.3	19.0	1
232 (23)	37	Spilling It	20	07/03/90	1505	25							2	4	8	25	39	19	3	1			101	22.2	19.0	2
232 (23)	38	Stopper I	21	08/03/90	0720	26				1	1	1	7	11	22	33	22	3	1				102	22.0	19.0	3
232 (23)	39	St. Ines I	21	08/03/90	1600	not rep							4	15	15	16	29	15	4	1			99	21.7	19.0	4
232 (23)	40	Stopper I	37	09/03/90	0635	27					1		10	13	25	31	11	9					100	21.9	19.0	1
232 (23)	41	Chrow I	31	10/03/90	0845	28		1		1		6	14	15	19	25	12	5	2				100	21.5	19.0	7
232 (23)	42	N Lyall Pt	21	15/03/90	0640			No Length Frequency Measurements																		
232 (23)	43	Hermit I	17	14/03/90	1250			No Length Frequency Measurements																		
232 (23)	44	Staff It	20	15/03/90	1630			No Length Frequency Measurements																		
232 (23)	45	Forbes I	28	16/03/90	0745				1	3	10	23	15	18	22	11	3						106	21.0	19.0	13
232 (23)	46	Wilkins It	24	16/03/90	0945					1	2	1	13	8	16	11	1						53	21.8	19.0	6
232 (23)	47	St. Ines I	24	16/03/90	1615			No Length Frequency Measurements																		
232 (23)	48	Staff It	20	16/03/90	1815			No Length Frequency Measurements																		
232 (23)	49	Forbes I	30	19/03/90	0750						1	2	11	12	11	33	23	6					99	22.0	19.0	3

TABLE 33. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1". STAT AREA: 24, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
243 (24)	1	Sydney Inlet (W shore, off sewer outfall)	27	27/02/90	0755		Net Damaged		7.4		W a t e r		H a u l									
243 (24)	2	Sydney Inlet		27/02/90	1520	8000	300	200	7.4	1	46	45	56	55	0.5	0.5	4	10	42	0	0	21.8
* 998 Herring Tagged																						
243 (24)	3	Sydney Inlet (Top end, across from Starling Pt)	40	28/02/90	1210						W a t e r		H a u l									
243 (24)	4	Sydney Inlet (W Shore, across from Starling Pt)	37	28/02/90	1338	8000-10000	250	150	7.4	1	57	56	44	44	3.0	3.4	14	5	25	1	0	21.3
* 997 Herring Tagged																						
243 (24)	5	Sydney Inlet (Off sewer outfall)	40	28/02/90	1714	8000-10000	200	100	7.7	1	43	44	55	56	1.0	0.9	7	12	36	0	0	21.2
* 998 Herring tagged																						
243 (24)	6	Sydney Inlet (W shore)	35	02/03/90	1124				7.7	1	42	46	50	54	9.0	8.3	30	12	8	0	0	21.4
* 995 Herring tagged										2	49	51	48	49	8.0	8.2	27	14	7	0	0	
										avg.	46	49	49	52	8.5	8.2	29	13	8			
243 (24)	7	Starling Pt (0.25mi W)	40	02/03/90	1500	8000-10000	100	50	8.0	1	40	40	59	60	13.0	10.8	44	6	9	0	0	21.5
										2	53	51	51	49	10.0	10.2	34	6	11	0	0	
										3	50	44	63	56	10.5	9.4	39	8	16	0	0	
										4	57	54	49	46	8.0	8.7	29	14	6	0	0	
										avg.	50	47	56	53	10.4	9.8	37	9	11			
243 (24)	8	Sydney Inlet (Mid Ch Starling Pt)	35	03/03/90	0754	10000-12000	250	50-60	8.0	1	59	56	47	44	9.0	10.2	31	5	11	0	0	21.9
* 995 Herring Tagged										2	52	50	53	50	11.5	11.5	38	7	8	0	0	
										3	38	39	60	61	12.0	9.8	41	10	9	0	0	
										avg.	50	48	53	52	10.8	10.5	37	7	9			
243 (24)	9	Sydney Inlet (Across from Starling Pt)	37	04/03/90	0758	9000	200	50	7.7	1	51	50	52	50	10.5	10.5	38	6	8	0	0	21.1
* 993 Herring Tagged										2	40	37	69	63	12.5	9.9	48	3	18	4	0	
										3	56	50	55	50	8.5	8.5	35	5	15	6	0	
										4	43	40	64	60	14.0	11.7	44	7	13	1	0	
										5	48	48	52	52	11.0	10.6	37	6	9	5	0	
										avg.	48	45	58	55	11.3	10.2	40	5	13			
243 (24)	10	Sydney Inlet (Off Sharp Pt)	29	04/03/90	1356						W a t e r		H a u l									
243 (24)	11	Sydney Inlet (W Shore)		04/03/90	1436		250	100	8.2	1	53	49	55	51	13.0	12.7	50	2	3	0	0	21.6
* 999 Herring Tagged										2	55	49	57	51	12.0	11.8	45	5	7	0	0	
										3	52	47	59	53	15.0	14.2	49	4	6	0	0	
										4	50	44	63	56	15.5	13.8	49	8	6	0	0	
										avg.	53	47	59	53	13.9	13.1	48	5	6			

TABLE 33 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1". STAT AREA: 24, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
243 (24)	12	Sydney Inlet (Starling Pt)	34	04/03/90	2028	8000-10000	200	35	8.0	1	41	40	62	60	14.0	11.7	49	4	9	1	0	21.3
										2	58	57	44	43	11.0	12.8	35	2	7	6	0	
										3	46	47	51	53	12.5	11.8	43	3	5	0	0	
										4	44	44	55	56	16.0	14.3	49	3	3	0	U	
										5	35	35	64	65	15.0	11.5	51	7	6	0	0	
										avg.	45	45	55	55	13.7	12.4	45	4	6			
243 (24)	13	Sydney Inlet (Off Starling Pt)	20	05/03/90	0746		150-200	15-20	7.9	1	47	49	48	51	11.5	11.3	41	6	1	2	0	21.8
										2	44	49	46	51	14.0	13.7	42	2	2	3	0	
										3	51	53	46	47	14.0	14.9	44	1	1	1	0	
										4	44	46	52	54	17.0	15.7	51	0	1	1	0	
										5	52	54	44	46	13.0	14.1	40	3	1	4	0	
										avg.	48	50	47	50	13.9	14.0	44	2	1			
* 1000 Herring Tagged																						
243 (24)	14	Sydney Inlet (0.5mi W Starling Pt)		06/03/90	0920		125	0	7.5	W a t e r H a u l												
243 (24)	15	Sydney Inlet (0.5mi W NW of Starling Pt)	40	06/03/90	1010	Sample is Not Representative	100	8	7.4	1	35	41	50	59	10.0	8.5	36	2	12	14	0	20.8
243 (24)	16	Sydney Inlet (S of sewer outfall)	21	06/03/90	1300	4000	600-700	125	7.2	1	44	45	53	55	16.0	14.5	51	2	0	1	0	21.6
										2	45	44	58	56	16.0	14.3	53	3	2	0	0	
										3	50	50	50	50	14.0	14.0	45	3	2	1	0	
										4	45	45	54	55	16.0	14.5	52	1	1	0	0	
										5	46	44	58	56	17.5	15.6	56	0	2	2	0	
										avg.	46	46	55	54	15.9	14.6	51	2	1			
* 997 Herring Tagged																						
244 (24)	17	Millar Ch (Top end Mckay I)	48	07/03/90	1422	2000	70		8.0	W a t e r H a u l												
244 (24)	18	Matilda Inlet (Entrance)	28	08/03/90	0820	2000	25	25	7.2	1	57	55	46	45	17.0	18.9	46	0	0	0	0	22.7
										2	52	53	46	47	16.0	17.0	43	2	1	0	0	
										3	36	37	61	63	17.5	13.9	58	0	3	0	0	
										4	30	33	62	67	18.5	13.8	60	0	2	0	0	
										5	50	50	50	50	16.0	16.0	48	2	0	0	0	
										avg.	45	46	53	54	17.0	15.9	51	1	1			
244 (24)	19	Millar Ch (Near Matilda Inlet)	30	08/03/90	1453	1500	250	50	7.0	1	51	48	56	52	17.0	16.3	55	0	1	0	0	21.7
										2	58	51	55	49	16.5	16.8	52	2	1	0	0	
										3	44	44	56	56	17.5	15.6	55	0	1	1	0	
										4	50	48	54	52	16.0	15.4	50	3	1	0	0	
										5	47	45	57	55	16.5	15.0	51	1	5	0	0	
										avg.	50	47	56	53	16.7	15.8	53	1	2			
* 992 Herring Tagged																						
245 (24)	20	Necate Bay	12	10/03/90	0610					W a t e r H a u l												

TABLE 33 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1". STAT AREA: 24, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
245 (24)	21	Hecate Bay	13	10/03/90	0640	1200	100	5	7.5	1	50	51	48	49	13.5	13.8	44	1	3	1	0	21.0
										2	45	45	56	55	15.5	14.1	53	1	2	0	0	
										3	53	56	42	44	11.5	13.1	37	3	2	0	0	
										4	50	46	59	54	14.0	13.0	52	3	4	2	0	
										5	56	52	51	48	13.8	14.3	49	0	2	2	0	
										avg.	51	50	51	50	13.7	13.6	47	2	3			
245 (24)	22	Calmus Pass	11	11/03/90	0745	1500-2000	300-400	50	7.5	1	46	43	60	57	15.0	13.2	57	0	3	6	0	21.3
										2	52	49	54	51	14.0	13.7	50	4	0	3	0	
										3	54	48	59	52	15.0	14.4	56	2	1	6	0	
										4	55	49	58	51	16.0	15.7	53	2	3	1	0	
										5	44	42	60	58	16.5	14.2	60	0	0	5	0	
										avg.	50	46	58	54	15.3	14.2	55	2	1			
245 (24)	23	Little Epper Pass	9	12/03/90	2030	1000	250	10	7.5	1	58	53	52	47	12.5	13.3	48	0	4	4	0	21.3
										2	58	53	52	47	13.5	14.4	50	0	2	3	0	
										3	66	59	46	41	12.0	14.6	44	0	2	2	0	
										4	52	44	66	56	17.0	15.2	62	0	4	2	0	
										5	49	45	61	55	16.0	14.5	59	1	1	3	0	
										avg.	57	51	55	49	14.2	14.4	53	0	3			
244 (24)	24	Clifford Pt (Bauden Bay side)		14/03/90	0930	1000+	85	15	8.0	1	44	44	55	56	16.0	14.3	53	1	1	0	0	21.6
										2	55	52	51	48	14.5	15.1	51	0	0	2	0	
										3	59	57	44	43	12.5	14.5	44	0	0	0	0	
										4	58	56	46	44	14.0	15.9	46	0	0	1	0	
										5	42	40	64	60	17.5	14.6	63	0	1	2	0	
										avg.	52	50	52	50	14.9	14.9	51	0	0			
244 (24)	25	W Millar Ch (SW Atleo River)	40	15/03/90	1110	400	50		7.8	W a t e r H a u l												
244 (24)	26	McKay I	40	15/03/90	1248	400	70			W a t e r H a u l												
244 (24)	27	Lower Millar Ch (1mi S Clifford Pt)	8	17/03/90	0938	1000	50	15	8.5	1	41	43	54	57	17.0	14.9	57	1	0	0	0	22.3
										2	30	35	55	65	18.0	13.8	54	0	1	0	0	
										3	40	42	56	58	17.5	15.1	55	0	1	1	0	
										4	44	42	61	58	19.5	16.8	60	1	0	0	0	
										5	35	36	62	64	17.5	13.7	59	3	0	0	0	
										avg.	38	40	58	60	17.9	14.9	56	1	0			

TABLE 33 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1". STAT AREA: 24, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
245 (24)		Yellow Bank (E side)		20/03/90	1500	Gillnet	Fishery	Sample		1	44	48	47	52	16.0	15.4	47	0	0	0	0	22.7
										2	41	44	52	56	17.5	15.6	52	0	0	0	0	
										3	49	56	39	44	12.5	14.2	39	0	0	3	0	
										4	38	43	50	57	16.5	14.5	50	0	0	2	0	
										5	49	55	40	45	11.0	12.2	40	0	0	2	0	
										avg.	44	49	46	51	14.7	14.4	46	0	0			
245 (24)		Robert Pt		20/03/90		Gillnet	Fishery	Sample		1	50	56	40	44	13.4	15.2	40	0	0	0	0	22.6
										2	55	60	36	40	12.0	15.0	36	0	0	1	0	
										3	49	52	46	48	16.0	16.7	46	0	0	0	0	
										avg.	51	56	41	44	13.8	15.6	41	0	0			
245 (24)		Robert Pt		21/03/90		Gillnet	Fishery	Sample		1	32	36	56	64	17.5	13.7				2	0	22.5
										2	39	41	55	59	17.2	14.6				0	0	
										3	41	44	52	56	16.5	14.7				2	0	
										4	40	42	55	58	16.5	14.2				1	0	
										5	28	29	68	71	20.0	14.1				0	0	
										avg.	36	38	57	62	17.5	14.3	0	0	0			
245 (24)		Elbow Bank (Outside)				Gillnet	Fishery	Sample		1	41	49	42	51	12.5	12.3	42	0	0	0	0	22.2
245 (24)		Ritchie Bay (N End)		21/03/90		Gillnet	Fishery	Sample		1	64	64	36	36	9.0	12.5	35	1	0	0	0	22.0
245 (24)		Robert Pt		21/03/90		Gillnet	Fishery	Sample		1	61	62	37	38	11.0	14.5	37	0	0	0	0	22.3
245 (24)		Rassier Pt (N Elbow Bank)		21/03/90	1500	Gillnet	Fishery	Sample		1	42	48	46	52	16.0	15.4	46	0	0	0	0	22.5

TABLE 34. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1". STAT AREA: 24, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
							13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				
243 (24)	1	Sydney Inlet	27	27/02/90	0755		W a t e r H a u l																			
243 (24)	2	Sydney Inlet		27/02/90	1520	1				1	0	3	13	14	14	36	11	8					100	21.8	19.0	4
243 (24)	3	Sydney Inlet	40	28/02/90	1210		W a t e r H a u l																			
243 (24)	4	Sydney Inlet	37	28/02/90	1338	2				1	0	1	3	21	11	26	28	9	0	1			101	21.3	19.0	5
243 (24)	5	Sydney Inlet	40	28/02/90	1714	3						3	8	10	20	26	24	8	2				101	21.2	19.0	11
243 (24)	6	Sydney Inlet	35	02/03/90	1124	4				1	0	2	1	16	15	22	25	17					99	21.4	19.0	4
243 (24)	7	Starling Pt	40	02/03/90	1500	5						3	5	15	13	29	21	8	10				104	21.5	19.0	8
243 (24)	8	Sydney Inlet	35	03/03/90	0754	6							1	9	12	33	25	17	3				100	21.9	19.0	1
243 (24)	9	Sydney Inlet	37	04/03/90	0758	7				1	0	0	11	16	22	16	23	7	4				100	21.1	19.0	12
243 (24)	10	Sydney Inlet	29	04/03/90	1356		W a t e r H a u l																			
243 (24)	11	Sydney Inlet		04/03/90	1436	8						1	2	12	20	18	32	12	3	1			101	21.6	19.0	3
243 (24)	12	Sydney Inlet	34	04/03/90	2028	9				2	0	0	6	16	12	23	21	13	4				97	21.3	19.0	8
243 (24)	13	Sydney Inlet	20	05/03/90	0746	10						1	3	8	14	23	29	18	4				100	21.8	19.0	4
243 (24)	14	Sydney Inlet		06/03/90	0920		W a t e r H a u l																			
243 (24)	15	Sydney Inlet	40	06/03/90	1010					1	3	3	10	17	16	22	16	9	3				100	20.8	19.0	17
243 (24)	16	Sydney Inlet	21	06/03/90	1300	11					1	0	4	10	20	20	29	13	2	1			100	21.6	19.0	5
244 (24)	17	Millar Ch	48	07/03/90	1422		W a t e r H a u l																			
244 (24)	18	Matilda Inlet	28	08/03/90	0820	12							3	2	8	14	27	35	13	4			106	22.7	19.0	3
244 (24)	19	Millar Ch	30	08/03/90	1453	13								10	15	27	36	6	2	1			97	21.7	19.0	0
245 (24)	20	Hecate Bay	15	10/03/90	0610		W a t e r H a u l																			
245 (24)	21	Hecate Bay	13	10/03/90	0640	15					1	3	4	12	25	27	21	5					98	21.0	19.0	8
245 (24)	22	Calmus Pass	11	11/03/90	0745	16							4	17	27	17	24	9	2				100	21.3	19.0	4
245 (24)	23	Little Epper Pass.	9	12/03/90	2030	17					1	2	7	13	16	22	26	9	4				100	21.3	19.0	10
244 (24)	24	Clifford Pt		14/03/90	0930	18							4	8	19	30	26	9	4				100	21.6	19.0	12
244 (24)	25	Millar Ch	40	15/03/90	1110		W a t e r H a u l																			

TABLE 34 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1". STAT AREA: 24, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
244 (24)	26	McKay I	40	15/03/90	1248																						
													W	a	t	e	r		H	a	u	l					
244 (24)	27	Millar Ch	8	17/03/90	0938	19							3	5	7	18	40	19	8					100	22.3	19.0	8
245 (24)		Yellow Bank		20/03/90	1500	Gillnet Fishery Sample									2	21	38	32	8					101	22.7	19.0	0
245 (24)		Robert Pt		20/03/90		Gillnet Fishery Sample									1	19	42	22	2	1				87	22.6	19.0	0
245 (24)		Robert Pt		21/03/90		Gillnet Fishery Sample									2	28	42	23	3	2				100	22.5	19.0	0
245 (24)		Elbow Bank		21/03/90		Gillnet Fishery Sample									7	51	82	10	4					154	22.2	19.0	0
245 (24)		Ritchie Bay		21/03/90		Gillnet Fishery Sample									17	82	91	10	4					204	22.0	19.0	0
245 (24)		Robert Pt		21/03/90		Gillnet Fishery Sample								2	14	61	81	30	8					196	22.3	19.0	0
245 (24)		Rassier Pt		21/03/90		Gillnet Fishery Sample									4	58	74	28	10	4				178	22.5	19.0	0

TABLE 35. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ELLING K". STAT AREA: 23,24,25, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
243 (24)	1	Sydney Inlet (1mi N of outfall post)	40	21/02/90	1835	8000+		400-500	7.0	1	28	35	52	65	0.0	0.0	0	0	52	0	1	22.4
										2	40	45	49	55	0.0	0.0	0	0	49	0	0	
										avg.	34	40	51	60	0.0	0.0	0	0	51			
243 (24)	2	Sydney Inlet	38	22/03/90	0627	8000+	300	50	6.7	1	40	39	62	61	0.0	0.0	2	0	60	0	0	21.5
										2	41	39	63	61	0.0	0.0	1	0	62	1	1	
										3	37	36	65	64	0.0	0.0	1	0	64	1	3	
										avg.	39	38	63	62	0.0	0.0	1	0	62			
253 (25)	3	Gillam Ch	28	24/03/90	0840	300			7.4	Water Haul												
253 (25)	4	Gillam Ch	28	24/03/90	1240	300		0	7.6	Water Haul												
253 (25)	5	Gillam Ch (Btwn Black Rk and Rosa I)	25	24/02/90	1325	300	75-100	75-100	7.5	1	57	41	82	59	7.0	5.9	48	20	14	0	0	20.6
										2	56	51	54	49	6.0	6.1	24	13	17	0	0	
										3	52	48	57	52	10.0	9.6	35	12	10	0	0	
										4	52	44	67	56	6.0	5.4	30	10	27	0	0	
* 486 Herring Tagged										avg.	54	46	65	54	7.3	6.8	34	14	17			
253 (25)	6	Esperanza Inlet (Gillam Ch)	15	25/02/90	1500	350	50	30	7.5	1	41	46	48	54	13.0	12.0	35	2	11	0	1	21.8
										2	31	31	70	69	14.0	10.1	47	9	14	0	2	
										3	28	42	38	58	6.0	5.2	24	5	9	0	0	
										4	53	55	44	45	11.0	12.2	30	2	12	0	0	
										avg.	38	44	50	57	11.0	9.9	34	5	12			
253 (25)	7	Esperanza Inlet (Rosa I and Black Rk)	31	26/02/90	1320	300	50	40	7.5	1	47	55	38	45	11.0	12.2	31	2	5	0	0	22.8
										2	32	41	46	59	14.0	11.9	35	8	3	0	0	
										3	37	45	46	55	14.0	12.7	37	4	5	0	0	
										4	41	49	43	51	13.0	12.7	33	5	5	0	0	
* 997 Herring Tagged										avg.	39	48	43	53	13.0	12.4	34	5	5			
252 25)	8	Maquinna Pt (0.5mi off)	26	28/02/90	0800	300	50		7.1	Water Haul												
252 (25)	9	Nootka Sd (Maquinna Pt, 0.5mi off)	40	28/02/90	0910	300	100	25	7.1	1	54	49	56	51	12.0	11.8	45	4	7	0	0	20.7
										2	56	50	57	50	10.5	10.5	44	5	8	0	0	
* 1000 Herring Tagged										avg.	55	50	57	51	11.3	11.1	45	5	8			
253 (25)	10	Esperanza Inlet (Rosa I)	25	28/02/90	1610	150	100	100	7.6	1	36	37	62	63	13.0	10.3	46	1	15	2	0	21.1
										2	54	49	57	51	8.5	8.3	29	5	23	1	0	
										3	46	46	54	54	12.5	11.6	40	5	9	3	0	
* 996 Herring Tagged										avg.	45	44	58	56	11.3	10.1	38	4	16			

TABLE 35 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ELLING K". STAT AREA: 23,24,25, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
252 (25)	11	Hootka Lighthouse (2 miles SE)	32	02/03/90	1555	300	100	100	7.6	1	39	48	43	52	14.0	13.5	42	0	1	0	0	22.3
										2	38	46	44	54	14.0	13.0	40	2	2	0	0	
* 998 Herring Tagged										avg.	39	47	44	53	14.0	13.2	41	1	2			
243 (24)	12	Sydney Inlet (W shore mouth)	28	05/03/90	0755	8000-10000	100	20	7.6	1	36	41	52	59	11.5	9.7	43	3	6	4	0	21.3
										2	59	55	49	45	11.0	12.2	41	3	5	4	0	
										3	55	52	50	48	10.0	10.4	38	7	5	3	0	
										4	48	48	51	52	14.5	13.9	46	3	2	3	0	
										4	60	58	43	42	9.5	11.3	37	1	5	0	0	
										avg.	52	51	49	49	11.3	11.5	41	3	5			
243 (24)	13	Sydney Inlet (Starling Pt)	36	06/03/90	1050	3000-4000	50		7.4	W a t e r H a u l												
243 (24)	14	Sydney Inlet (Sewer Outfall)	24	06/03/90	1720	3000	70	10	7.4	1	43	49	45	51	4.0	3.9	18	2	25	51	0	19.7
										2	39	42	54	58	5.0	4.3	23	0	31	49	0	
										3	38	41	55	59	5.5	4.7	25	0	30	38	0	
										avg.	40	44	51	56	4.8	4.3	22	1	29			
243 (24)	15	Sydney Inlet (W Shore inside sewer outfall)	38	07/03/90	0705	1000-2000	150	40	7.4	1	51	48	55	52	10.5	10.1	44	2	9	6	0	21.1
										2	51	50	50	50	12.0	12.0	43	2	5	7	0	
										3	42	43	55	57	12.0	10.5	47	2	6	14	2	
										4	47	47	53	53	12.0	11.3	44	2	7	8	0	
										avg.	48	47	53	53	11.6	11.0	45	2	7			
232 (23)	16	Sechart Ch (Howard Pt)		08/03/90	1003		150-200	100	7.4	1	45	52	41	48	11.0	11.5	37	1	3	0	0	21.7
										2	43	46	50	54	14.0	13.0	44	1	5	0	0	
										3	55	59	39	41	12.5	15.2	37	0	2	1	0	
										4	60	58	43	42	8.0	9.5	31	1	11	0	0	
										5	69	63	41	37	9.5	12.8	35	2	4	0	0	
										avg.	54	56	43	44	11.0	12.4	37	1	5			
232 (23)	17	Capstan I	23	08/03/90	1430	500	50-75	50-75	6.8	1	51	53	45	47	12.5	13.3	43	1	1	1	0	21.7
										2	50	50	50	50	15.0	15.0	48	1	1	0	0	
										3	41	41	60	59	16.0	13.6	57	0	3	2	0	
										4	40	41	57	59	16.5	14.0	55	0	2	0	0	
										avg.	46	46	53	54	15.0	14.0	51	1	2			
233 (23)	18	Swale Rock	30	09/03/90	0701	500	100		7.4	1	91	62	56	38	7.5	9.9	41	2	13	0	0	19.9
										2	97	66	49	34	7.5	11.0	40	1	8	0	0	
										3	100	68	48	32	4.5	7.0	31	0	17	0	0	
										avg.	96	65	51	35	6.5	9.3	37	1	13			

TABLE 35 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ELLING K". STAT AREA: 23,24,25, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or !mm	Avg. Length (cm)
233 (23)	19	Swale Rock (0.5mi N)	40	09/03/90	1005	500	150	30	7.4	1	60	59	41	41	9.0	11.0	38	0	3	0	0	21.6
										2	47	49	49	51	12.0	11.8	45	1	3	2	0	
										3	53	51	51	49	14.5	14.8	50	0	1	0	0	
										4	52	46	62	54	14.0	13.0	58	0	4	0	0	
										avg.	53	51	51	49	12.4	12.6	48	0	3			
232 (23)	20	St. Ines I (David Ch)	20	10/03/90	0907		300	200	7.3	1	58	59	40	41	10.5	12.8	38	1	1	1	0	22.0
										2	50	53	45	47	13.8	14.6	40	2	3	0	0	
										3	51	51	49	49	14.5	14.8	45	2	2	0	0	
										4	45	45	55	55	15.0	13.6	49	4	2	0	0	
										5	48	49	50	51	14.0	13.7	47	0	3	0	0	
										avg.	50	51	48	49	13.6	13.9	44	2	2			
232 (23)	21	Sechart Ch (Capstan I)	35	10/03/90	1354	W a t e r H a u l																
232 (23)	22	Sechart Ch (Capstan I)	22	10/03/90	1538	W a t e r H a u l																
232 (23)	23	Sechart Ch (Capstan I)	30	11/03/90	0653	400-500	50	50	6.8	1	48	46	57	54	14.5	13.4	51	4	2	0	0	21.4
										2	53	49	56	51	14.0	13.7	52	1	3	0	1	
										3	50	46	58	54	14.0	13.0	53	2	3	0	0	
										4	48	45	58	55	14.0	12.7	49	1	8	0	0	
										5	55	54	47	46	12.0	13.0	42	2	3	0	1	
										avg.	51	48	55	52	13.7	13.2	49	2	4			
232 (23)	24	David Ch (Stopper I)	15	14/03/90	1700	Charter Payment	400	120		1	65	60	43	40	11.5	14.4	41	1	1	0	0	
										2	56	52	52	48	13.5	14.1	50	1	1	0	0	
										3	64	56	50	44	14.0	15.9	48	2	0	0	0	
										avg.	62	56	48	44	13.0	14.8	46	1	1			
232 (23)	25	Stopper I		16/03/90		Charter Payment			7.8	1	55	52	51	48	14.5	15.1	51	0	0	0	0	
										2	70	57	52	43	14.0	16.3	49	0	3	0	0	
										3	70	58	50	42	13.5	16.1	47	0	3	0	0	
										avg.	65	56	51	44	14.0	15.8	49	0	2			
232 (23)	26	Staff It	19	17/03/90		Charter Payment				1	52	51	49	49	13.5	13.8	49	0	0	1	0	
										2	46	45	56	55	16.0	14.5	54	1	1	0	0	
										3	38	38	61	62	17.0	13.7	60	0	1	0	1	
										avg.	45	45	55	55	15.5	14.0	54	0	1			

TABLE 35 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ELLING K". STAT AREA: 23,24,25, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3	Spnd Out	Juv or Imm	Avg. Length (cm)
232 (23)	27	Staff It	21	17/03/90		Charter Payment				1	56	53	49	47	13.0	13.8	49	0	0	0	0	
										2	52	53	46	47	13.5	14.4	43	3	0	0	0	
										3	61	55	50	45	12.0	13.3	47	0	3	1	0	
										4	46	45	56	55	16.0	14.5	55	0	1	0	0	
										5	48	44	60	56	17.0	15.2	58	1	1	0	0	
										avg.	53	50	52	50	14.3	14.2	50	1	1			
232 (23)	28	Swale Rk	38	18/03/90	1530	500	100	0		W a t e r H a u l												
232 (23)	29	Capstan I	40	18/03/90	1650	500	80	30	7.0	1	43	44	55	56	13.5	12.1	55	0	0	0	0	21.6
										2	42	40	62	60	17.0	14.2	60	0	2	0	0	
										3	47	49	48	51	14.5	14.2	46	2	0	2	0	
										avg.	44	44	55	56	15.0	13.5	54	1	1			
232 (23)	30	Chrow I	30	20/03/90	1130	4000+	50	25	8.5	1	50	51	49	49	12.5	12.8	49	0	0	2	1	21.5
										2	54	51	52	49	14.5	14.8	51	0	1	0	0	
										3	57	53	50	47	13.5	14.4	50	0	0	0	0	
										avg.	54	52	50	48	13.5	14.0	50	0	0			
253 (25)		Nuchatlitz Inlet (Ferrier Pt)	17	25/02/90	0740	50 Dipnet Sample	10	4 buckets on Herring Ball	7.0	1	32	36	56	64	15.0	11.7	40	3	13	0	1	21.8
										2	38	42	53	58	15.0	12.9	40	5	8	0	0	
										3	44	45	54	55	14.5	13.2	40	5	9	0	0	
										avg.	38	41	54	59	14.8	12.6	40	4	10			

TABLE 36. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ELLING K". STAT AREA: 23,24,25, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
243 (24)	1	Sydney Inlet	40	21/02/90	1835	1								7	9	17	35	25	9	1			103	22.4	19.0	0
243 (24)	2	Sydney Inlet	38	22/03/90	0627	2							3	14	25	22	19	8	5	2			98	21.5	19.0	3
253 (25)	3	Gillam Ch	28	24/03/90	0840		W a t e r						H a u l													
253 (25)	4	Gillam Ch	28	24/03/90	1240		W a t e r						H a u l													
253 (25)	5	Gillam Ch	25	24/02/90	1325	3				2	3	21	13	20	13	14	7	3	2				98	20.6	19.0	26
253 (25)	6	Esperanza Inlet	15	25/02/90	1500	4					3	8	15	16	9	11	22	12	5				101	21.8	19.0	11
253 (25)	7	Esperanza Inlet	31	26/02/90	1320	5						3	4	10	11	16	28	18	8				98	22.8	19.0	3
252 25)	8	Maquinna Pt	26	28/02/90	0800		W a t e r						H a u l													
252 (25)	9	Nootka Sd	40	28/02/90	0910	6			1	1	3	10	24	19	15	17	6	2	2				100	20.7	19.0	15
253 (25)	10	Esperanza Inlet	25	28/02/90	1610	7			2	0	1	6	23	20	13	17	10	6	1	1			100	21.1	19.0	9
253 (25)	11	Nootka Lighthouse	32	02/03/90	1555	8						1	6	12	21	25	22	11	2				100	22.3	19.0	1
243 (24)	12	Sydney Inlet	28	05/03/90	0755	9					2	5	14	20	28	20	11	2					102	21.3	19.0	7
243 (24)	13	Sydney Inlet	36	06/03/90	1050		W a t e r						H a u l													
243 (24)	14	Sydney Inlet	24	06/03/90	1720	10			5	4	8	15	24	22	13	7	1	1					100	19.7	19.0	32
243 (24)	15	Sydney Inlet	38	07/03/90	0705	11						6	22	24	15	20	7	3	1				98	21.1	19.0	6
232 (23)	16	Sechart Ch		08/03/90	1003	12				1	1	1	12	21	15	29	15	5					100	21.7	19.0	3
232 (23)	17	Capstan I	23	08/03/90	1430	13					1	2	13	17	18	31	16	2					100	21.7	19.0	3
233 (23)	18	Swale Rk	30	09/03/90	0701	14				2	5	18	36	24	9	5	2	1					102	19.9	19.0	25
233 (23)	19	Swale Rk	40	09/03/90	1005	15				1	0	4	14	12	24	29	12	2	1				99	21.6	19.0	5
232 (23)	20	St. Ines It	20	10/03/90	0907	16						3	8	9	22	40	14	4					100	22.0	19.0	3
232 (23)	21	Sechart Ch	35	10/03/90	1354		No Length Frequency Measurements																			
232 (23)	22	Sechart Ch	22	10/03/90	1538		No Length Frequency Measurements																			
232 (23)	23	Sechart Ch	30	11/03/90	0653	17					1	6	13	19	21	27	13						100	21.4	19.0	7
232 (23)	24	Sechart Ch	15	14/03/90	1700		No Length Frequency Measurements																			
232 (23)	25	Stopper I		16/03/90			No Length Frequency Measurements																			

TABLE 36 (cont). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ELLING K". STAT AREA: 23,24,25, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
232 (23)	26	Staff It	19	17/03/90			No Length Frequency Measurements																			
232 (23)	27	Staff It	21	17/03/90			No Length Frequency Measurements																			
232 (23)	28	Swale Rock	38	18/03/90	1530		W a t e r						H a u l													
232 (23)	29	Capstan I	40	18/03/90	1650	18							3	15	15	29	21	18	3				104	21.6	19.0	3
232 (23)	30	Chrow I	30	20/03/9801130		19						3	6	13	12	22	26	15	2	0	1		100	21.5	19.0	9

TABLE 37. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST". STAT AREA: 24,27, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio %	Sex Ratio F No.	Sex Ratio %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
273 (27)	1	Forward Inlet (Entrance)	46	24/02/90	0848	2000	300	250	7.0	1	57	55	46	45	0.0	0.0	0	0	46	0	1	21.1
* 1000 Herring Tagged																						
273 (27)	2	Forward Inlet (Hunt Its)	30	24/02/90	1627	2000	50	8	7.5	1	34	32	71	68	0.2	0.1	4	3	64	0	0	22.1
* 1000 Herring Tagged																						
272 (27)	3	Klaskish Inlet (McDougal Is)	30	25/02/90	1730	1000	300	300	7.0	1	35	45	43	55	1.0	0.9	7	15	21	0	0	23.6
* 1000 Herring Tagged																						
272 (27)	4	Klaskish Inlet (McDougal Is)	30	26/03/90	0630	1000	750	300	7.0	1	29	35	54	65	2.0	1.5	7	14	33	0	0	23.1
* 996 Herring Tagged																						
273 (27)	5	Forward Inlet (Off Montgomery Pt)		27/02/90	0630	2000	100	25	6.5	1	69	53	62	47	0.0	0.0	5	3	54	0	6	20.8
* 990 Herring Tagged																						
273 (27)	6	Forward Inlet (Matthews Is)		27/02/90	1630	2000	100	75	7.5	1	66	56	52	44	3.0	3.4	18	17	17	0	0	20.9
* 999 Herring Tagged																						
272 (27)	7	Klaskish Inlet (McDougal I)	35	01/03/90	0545	1000	250	150	7.0	1	29	39	45	61	7.0	5.7	19	18	8	0	0	23.6
* 1000 Herring Tagged																						
272 (27)	8	Klaskish Inlet (Entrance to basin)	18	01/03/90	1652	1000+	500	150	7.5	1	29	39	45	61	6.0	4.9	18	24	3	0	0	23.3
* 1000 Herring Tagged																						
261 (26)	9	Kyuquot Ch (Whiteley I)	33	04/03/90	0610	200	skimmer	10-15	7.5	Juvenile Herring												
272 (27)	10	Klaskish Inlet (Klaskish Anch)		04/03/90	1732	1500	200	100	7.8	1	27	33	56	67	10.0	7.5	31	22	3	0	0	23.3
* 1000 Herring Tagged																						
273 (27)	11	Forward Inlet (Hall Bank)	15	06/03/90	1520		300	50	7.5	1	41	51	39	49	9.0	9.2	25	11	3	0	0	22.5
* 1000 Herring Tagged										2	37	57	28	43	8.0	9.3	21	4	3	0	0	
										avg.	39	54	34	46	8.5	9.2	23	8	3			
243 (24)	12	Sydney Inlet (W shore outfalls)	37	09/03/90	0630	4000	400	100	7.5	1	45	47	51	53	11.9	11.2	50	1	0	1	0	21.1
										2	46	47	51	53	13.0	12.3	47	3	1	0	0	
										3	46	47	52	53	12.8	12.1	47	3	2	1	0	
										4	46	46	53	54	13.0	12.0	50	3	0	1	0	
										5	47	48	50	52	12.2	11.7	49	0	1	0	0	
										avg.	46	47	51	53	12.6	11.9	49	2	1			

TABLE 37 (cont). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST". STAT AREA: 24,27, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Spnd Out	Juv or Imm	Avg. Length (cm)
243 (24)	13	Sydney Inlet (W shore N outfall)	13	10/03/90	0615	3000-4000	150	15	7.5	1	32	41	46	59	12.4	10.5	44	2	0	1	0	22.2
										2	58	62	36	38	9.5	12.5	34	1	1	0	1	
										3	49	51	48	49	12.7	13.0	47	1	0	0	0	
										4	39	39	61	61	10.2	8.4	56	5	0	1	1	
										avg.	45	48	48	52	11.2	11.1	45	2	0			
243 (24)	14	Sydney Inlet (N of outfall W shore)	38	10/03/90	0915	4000	500	300	7.5	1	53	52	48	48	12.1	12.6	47	1	0	0	0	21.8
										2	50	52	47	48	11.0	11.5	45	1	1	0	0	
										3	44	45	53	55	15.0	13.6	52	1	0	0	0	
										4	49	45	59	55	14.9	13.5	58	0	1	0	0	
										avg.	49	49	52	52	13.3	12.8	51	1	1			
243 (24)	15	Sydney Inlet (N of outfall W shore)	35	11/03/90	0720	3000	400	75	6.8	1	45	52	41	48	12.0	12.5	40	1	0	0	0	22.3
										2	47	50	47	50	12.8	12.8	45	2	0	2	0	
										3	47	49	49	51	15.0	14.7	48	0	1	1	0	
										avg.	46	50	46	50	13.3	13.3	44	1	0			
245 (24)	16	Kraan I (0.2 miles S)	19	14/03/90	1335	1000	150	100	7.5	1	49	49	52	51	11.7	11.5	52	0	0	0	0	21.6
										2	52	50	52	50	14.4	14.4	52	0	0	1	1	
										3	58	57	44	43	12.1	14.1	42	2	0	2	0	
										4	43	43	56	57	15.5	13.6	54	2	0	5	0	
										5	47	48	51	52	16.5	15.9	51	0	0	2	0	
										avg.	50	49	51	51	14.0	13.9	50	1	0			
243 (24)	17	Sydney Inlet (N of Starling Pt)	38	15/03/90	0916	400	50	25-30	7.5	1	67	60	44	40	12.0	15.0	41	1	2	0	0	21.5
										2	61	53	55	47	14.8	15.7	54	1	0	1	1	
										3	69	58	51	42	13.0	15.5	51	0	0	1	0	
										4	62	56	48	44	13.0	14.8	47	0	1	2	1	
										5	57	51	54	49	13.5	13.8	49	2	3	2	0	
										avg.	63	56	50	44	13.3	15.0	48	1	1			
243 (24)	18	Sydney Inlet (S of outfall)	18	16/03/90	1253	1000	200-300	50	7.5	1	41	51	40	49	13.5	13.8	40	0	0	0	0	22.8
										2	46	50	46	50	15.8	15.8	45	1	0	1	0	
										3	45	53	40	47	15 0	16.0	40	0	0	0	0	
										4	46	46	53	54	16.5	15.3	53	0	0	0	0	
										5	41	47	47	53	16.5	15.6	47	0	0	0	0	
										avg.	44	49	45	51	15.5	15.3	45	0	0			
243 (24)	19	Shelter Inlet (N of George I)	44	17/03/90	0904	500-600	150	5	8.0	1	45	51	44	49	13.0	13.3	44	0	0	0	0	21.9
										2	48	48	52	52	16.0	15.4	52	0	0	3	0	
										3	50	51	49	49	15.0	15.3	49	0	0	1	0	
										4	52	51	50	49	14.5	14.8	49	0	1	2	0	
										5	36	39	56	61	17.5	14.3	56	0	0	0	0	
										avg.	46	48	50	52	15.2	14.6	50	0	0			

TABLE 38. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST". STAT AREA: 24,25, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
273 (27)	1	Forward Inlet	46	24/02/90	0848	1				1			2	3	16	27	20	25	7					101	22.1	19.0	3
273 (27)	2	Forward Inlet	30	24/02/90	1627	2						1	3	8	10	18	32	20	4	3	1			100	22.1	19.0	4
272 (27)	3	Klaskish Inlet	30	25/02/90	1730	3							1		4	12	13	24	33	12	1			100	23.6	19.0	1
272 (27)	4	Klaskish Inlet	30	26/03/90	0630	4						1	1	1	5	12	28	28	14	7	4			101	23.1	19.0	2
273 (27)	5	Forward Inlet		27/02/90	0630	5					2	1	11	20	24	18	16	7	2					101	20.8	19.0	14
273 (27)	6	Forward Inlet		27/02/90	1630	6			1	1		5	8	9	14	12	15	7	5					77	20.9	19.0	20
272 (27)	7	Klaskish Inlet	35	01/03/90	0545	7								1	3	9	16	29	28	11	3			100	23.6	19.0	0
272 (27)	8	Klaskish Inlet	18	01/03/90	1652	8								2	6	7	24	23	21	14				97	23.3	19.0	0
261 (26)	9	Kyuquot Ch	33	04/03/90	0610					W	a	t	e	r			K	a	u	l							
272 (27)	10	Klaskish Inlet		04/03/90	1732	10								2	2	4	6	22	33	17	10	2		98	23.3	19.0	2
273 (27)	11	Forward Inlet	15	06/03/90	1520	11								2	4	13	21	23	13	13	7	1		97	22.5	19.0	2
243 (24)	12	Sydney Inlet	37	09/03/90	0630	12								3	5	17	19	28	20	7	2			101	22.1	19.0	3
243 (24)	13	Sydney Inlet	13	10/03/90	0615	13						1		2	9	12	10	33	23	8	2			100	22.2	19.0	3
243 (24)	14	Sydney Inlet	38	10/03/90	0915	14								3	13	17	17	27	17	4	2			100	21.8	19.0	3
243 (24)	15	Sydney Inlet	35	11/03/90	0720	15								1	8	10	17	32	21	9	2			100	22.3	19.0	1
245 (26)	16	Kraan I	19	14/03/90	1335	16								3	11	18	26	29	7	6				100	21.6	19.0	3
243 (24)	17	Sydney Inlet	38	15/03/90	0916	17								4	19	15	18	26	16	1	2			101	21.5	19.0	4
243 (24)	18	Sydney Inlet	18	16/03/90	1253	18								1	5	4	15	27	27	18	2			99	22.8	19.0	1
243 (24)	19	Shelter Inlet	44	17/03/90	0904	19								2	15	10	18	31	19	5				100	21.9	19.0	2

TABLE 39. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WALKER ROCK". STAT AREA: 14,17, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D /M /Y	Time	Tonnage In Loc.	Tonnage Set On	Tonnage Est. Catch	Temp. (C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield Vol.	Roe Yield Adj. Vol.	Roe Grade (Pcs) #1	#2	#3	Sprd Out	Juv or Imm	Avg. Length (cm)
142 (14)	1	Horseshoe	2	07/03/90	0800		Seine Sample	2	7.6	1	47	56	37	44	5.0	5.7	31	6	0	38	0	20.7
										2	35	47	39	53	6.5	6.1	37	1	1	34	0	
										avg.	41	52	38	49	5.8	5.9	34	4	1			
142 (14)	2	Longbeak Pt	3	07/03/90	1200	5000 skimmer	Seine Sample	1	7.3	1	40	38	64	62	10.3	8.3	54	6	4	13	0	21.0
										2	49	43	66	57	11.0	9.6	47	16	3	11	0	
										avg.	45	41	65	60	10.7	9.0	51	11	4			
142 (14)	3	Komass Bluff (2.2 E of Longbeak Pt)	3	08/03/90	0715	5000 skimmer	Seine Sample	1	6.9	1	38	49	40	51	5.0	4.9	31	2	7	51	0	20.8
142 (14)	4	Komass Bluff (1.2mi E of Longbeak)	3	08/03/90	0830	5000 skimmer	Seine Sample	3	6.9	1	46	46	55	54	9.0	8.3	42	11	2	28	0	20.2
										2	55	47	61	53	9.0	8.5	53	8	0	39	0	
										avg.	51	47	58	54	9.0	8.4	48	10	1			
142 (14)		Komass Bluff	3	08/03/90			Jig Sample			1	42	35	78	65	10.6	8.2	59	14	5	10	0	20.2
142 (14)		Cape Lazo		14/03/90	1800		Gillnet Fishery Sample			1	40	43	52	57	10.0	8.8	48	4	0	4	0	22.1
142 (14)		Cape Lazo (Horseshoe)		13/03/90			Gillnet Fishery Sample			1	36	47	41	53	9.0	8.5	40	1	0	24	101	22.1
142 (14)		Cape Lazo (E Horseshoe)					Gillnet Fishery Sample			1	27	32	58	68	14.0	10.3	57	1	0	13	99	22.3
142 (14)		Cape Lazo (Horseshoe, off airstrip)		14/03/90			Gillnet Fishery Sample			1	33	33	68	67	16.0	11.9	66	1	1	6	107	22.1
142 (14)		Cape Lazo (Horseshoe, Boat ramp)		14/03/90			Gillnet Fishery Sample			1	41	42	56	58	13.5	11.6	56	0	0	1	98	22.1
142 (14)		Cape Lazo (Horseshoe)		14/03/90			Gillnet Fishery Sample			1	47	42	64	58	12.3	10.6	58	6	0	3	114	21.2
173 (17)		Bath Island		22/03/90			Gillnet Fishery Sample			1	42	43	55	57	14.5	12.7	55	0	0	3	0	22.6
173 (17)		Bath Island		23/03/90			Gillnet Fishery Sample			1	34	34	67	66	16.5	12.5	66	1	0	0	0	21.7

TABLE 40. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WALKER ROCK". STAT AREA: 14,17, 1990.

Section (Area)	Set No.	Location	Depth (fm)	D\M\Y	Time	Biol. Sample No.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Sample Size	Avg. Length (cm)	Cut-off (cm)	% Below Cutoff
142 (14)	1	Horseshoe	2	07/03/90	0800	1 Seine Sample					2	2	8	23	18	21	19	4	1					98	20.7	19.0	12
142 (14)	2	Longbeak Pt	3	07/03/90	1200	2 Seine Sample						1	7	17	24	21	23	7						100	21.0	19.0	8
142 (14)	3	Komess Bluff	3	08/03/90	0715	3 Seine Sample					2	3	6	18	28	17	21	5						100	20.8	19.0	11
142 (14)	4	Komess Bluff	3	08/03/90	0830	4 Seine Sample					4	7	12	24	17	22	10	4	1					101	20.2	19.0	23
142 (14)		Komess Bluff	3	08/03/90		Jig Sample						8	15	20	29	17	10	1						100	20.2	19.0	23
142 (14)		Cape Lazo		14/03/90	1800	Gillnet Fishery Sample									4	18	23	5						50	22.1	19.0	0
142 (14)		Cape Lazo		14/03/90		Gillnet Fishery Sample									5	19	19	7						50	22.1	19.0	0
142 (14)		Cape Lazo				Gillnet Fishery Sample								1	3	11	26	9						50	22.3	19.0	0
142 (14)		Cape Lazo		14/03/90		Gillnet Fishery Sample									6	14	25	4	1					50	22.1	19.0	0
142 (14)		Cape Lazo		14/03/90		Gillnet Fishery Sample									2	22	20	6						50	22.1	19.0	0
142 (14)		Cape Lazo		14/03/90		Gillnet Fishery Sample								5	41	35	17	1						99	21.2	19.0	0
173 (17)		Bath I		22/03/90		Gillnet Fishery Sample									19	75	22	4						120	21.6	19.0	0
173 (17)		Bath I		23/03/90		Gillnet Fishery Sample								6	24	28	33	11						102	21.7	19.0	0

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Appendix Table 1. Onboard sampling instructions.

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1. Selection of sample sites

   (a) A list of priority sites will be supplied to charter vessel masters by the district Herring Management Coordinator.

   (b) While the onboard Fisheries Service representative is in charge of all charter operations, consultation with the vessel master is necessary to determine if it is possible to set in any given location at any given time.

2. Number of sample sets

   (a) For each important fishing location, secure 1 or 2 sample sets per visit. (e.g. from Mayne bay secure one set in the evening and one in the morning, then travel to another location). Each major location should be resampled at regular intervals.

To achieve a balanced number of samples from all areas, the following is a general guideline for the frequency of sample collection. The areas of the coast have been split into two groups as follows:

Major Areas		Minor Areas
2E	Cumshawa/Juan Perez/Skincuttle	2W - sample each inlet as
3/4	Port Simpson/Big Bay	frequently as possible.
5		4 - north end Porcher I.
6		8
7		9/10
14		12
15/16		13
17	north and south	18
23		26
24		
25		
27		

Where possible, obtain 3 or 4 samples per week from each major area and 1 or 2 samples per week from each minor area. It is important that sampling continue throughout the charter period, as fish are available, because age composition generally changes through the spawning season. It must be remembered that spawned out herring are just as important as unspawned herring in determining biological characteristics of different herring stocks.

Appendix Table 1 (cont'd)

(b) If it is evident from echosounding that few fish are present in the major fishing location, immediately go on to the next site.

(c) Try not to make large sets if the vessel master is confident a good cross section of available fish can be taken in a smaller set.

(d) Do not set twice on immature (young herring) stocks unless doubt exists that the first set was not representative of stocks in that location.

(e) Whether or not fish are caught, complete the Wheelhouse and Sample Log after each set; also, note the set in the Daily Log (Black Book).

3. Taking a random sample from the pursed seine

(a) Dry up the seine only as necessary to obtain samples; push the dip net or brailer vertically deep into the seine, then pull up quickly through a "BOIL" of fish so as to give no advantage to larger, faster fish.

(b) Assure yourself of enough fish by taking at least 5 sample buckets from each set.

(c) After obtaining a representative sample, immediately release the remaining fish to minimize scale damage.

(d) Mix the herring in the 5 sample buckets by pouring the herring back and forth in the 5 buckets.

(e) After the herring are measured, fill one sample bucket with a random sample of herring, place one completed shipping/sample label inside on top of the fish and affix the other to the bucket handle. If sampling is delayed, cover the fish with a tarp to prevent loss to birds.

Appendix Table 1 (cont'd)

For the 1990 roe herring season, two types of sample bucket labels were used:

1. Black-printed label for the normal biological sample retained after every set.

2. Red-printed label for special samples ie. GSI, fecundity or abnormal herring encountered.

(f) Keep samples refrigerated or in a frozen state.

(g) Caution the vessel master to instruct the crew not to throw any fish overboard until D.F.O. samples have been processed.

3. Processing onboard charter vessel samples

(a) Sample for roe yield using standard volumetric or weight method ad detailed in the 1990 SAMPLING GUIDELINES included with the ROE SAMPLE KIT.

(b) Measurement of fish in sample:

i) Sub-sample from the 5 sample buckets by measuring 20 herring from each bucket - do not pick out fish individually.

ii) In order to complete the 100 fish measurement the sampler should pour approximately 20 herring from each bucket directly onto the sampling table. As the herring are being poured another sampler can count the required 100 fish for the sample; if there are not enough herring to make up for the shortfall pour additional herring onto the sampling table from the sample buckets; if more than enough simply stop counting at 100 and remove the excess.

(c) Measure the fish

i) Tack the waterproof Wheelhouse and Sample Log to the measuring board.

ii) Record the "cut off" on the Wheelhouse and Sample Log and pencil in the appropriate "cut off" line on the measuring sheet; record the % below the cut off (Appendix Fig. 1A &1B).

Appendix Table 1 (cont'd)

iii) Before measuring a fish, use a sharp knife to remove scales from the tail section. This is very important since the length measurement goes to the end of the silvery colour on the skin of the fish and not to the end of the scales which cover the silvery colour on the skin.

iv) Measure 100 fish, each from the tip of the lower jaw to the end of the silvery colour on the tail. Every fish length should be recorded by marking the interval it falls into (Appendix Fig. 1A, 1B & 2).

(d) Biological (Laboratory) Samples

The biological samples will be stored aboard the charter vessel for the 26 day charter duration. This means extra care has to be taken to insure the samples are refrigerated. Although, the charter vessels are required to have a minimum of 36 cubit feet of freezer space, as well as, 5 tons of ice, 36 cubic feet is not enough space to freeze the 30-40 samples expected to be accumulated after 26 days.

As the samples are for laboratory analysis and not for human consumption there is a fair amount of flexibility on how they can be treated. The following procedure is recommended:

Rotate the samples from freezer to ice and back to the freezer after 4 or 5 days and repeat. For example, initially freeze the samples for two days and store the frozen samples in ice and refreeze after 4 or 5 days. This of course requires a lot of organization, therefore, the Vessel Master should designate a crew member to look after the samples.

Appendix Table 2. The 1990 roe herring cutoff lengths used to separate age 3 herring from older fish.

Statistical Area	Cutoff length
NORTH COAST	
Area 2E	190 mm
2W	200 mm
3 - 5	185 mm
6 - 10	185 mm
STRAIT OF GEORGIA	
Area 14 - 18	190 mm
WEST COAST VANCOUVER ISLAND	
23	190 mm
24	190 mm
25	190 mm
27	190 mm

NOTE: It should be noted that these cutoff lengths are used as reference points only in order to compare different test samples. They are derived from the average lengths of three-year-old fish from previous years and may or may not reflect the average length this year. In addition, there can be a considerable overlap in size between fish of different ages, so there is no definite length that can be used to separate the two groups of fish. Generally, these cutoff lengths provide additional information on size distribution of the stocks. An example of the usefulness of these cutoff lengths would be when comparing test sets made at the same location on different days. A large difference in the percentage of fish below the cutoff length may indicate that two different stocks of fish are present or that new fish have moved into the area. This is additional information used to determine the overall stock status.

Appendix Table 3. Instructions for estimating percent roe yield by volume.

This kit contains:

- one clear plastic volumetric cylinder
- one 18 I (4 imp. gal.) bucket with lid
- instruction sheet with photographs of maturity stages

Determination of roe maturity:

1. Fill the roe test bucket with fish level to the top of the bucket using herring from the 5 buckets retained from the seine set.

2. Determine sex of all fish in the bucket (by stripping).

3. Record numbers of each sex on sampling sheet.

4. Strip all roe from females.

5. Record condition of all roe on sampling sheet.

   Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as **MATURE** I in photograph appended to ROE SAMPLE KIT.

   Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as **IMMATURE** 2 in photograph appended to the ROE SAMPLE KIT.

   Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as **IMMATURE** 3 in photograph appended to the ROE SAMPLE KIT.

6. Deposit all Mature 1 roe into volumetric cylinder. Record the percent recovery from the scale on the side of the cylinder. Also record the number of females in conditions 1, 2 and 3, and record the number of males.

7. Repeat the above procedure for each additional sample and average the results. If the results of the three samples are very different, further tests may be required.

   Also important: Record the number of spawned out and juvenile/immature herring, and note gonad condition (running, firm, prominent blood vessels).

Appendix Table 4. Instructions for estimating percent roe yield by weight.

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1. Place the plastic container on the scale and tare the scale.

2. Fill the container with 10 kg (22 lb) of herring from one of the 5 sample buckets retained from the seine set by pouring the herring into the container; make sure there is no water in the sample because the roe yield estimate may be effected.

3. Strip all roe from the females.

4. Record condition of all the roe on the sampling sheer:

   Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as MATURE I in photograph appended to ROE SAMPLE KIT.

   Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as IMMATURE 2 in photograph appended to the ROE SAMPLE KIT.

   Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as IMMATURE 3 in photograph appended to the ROE SAMPLE KIT.

5. Tare the scale and deposit all Mature 1 roe into the weighing container; record the weight. If the #1 roe weight is 870 g, the roe yield is 8.7%; if 950 g, the roe yield is 9.5%, etc.

6. Record the number of females with conditions 1, 2 and 3 maturity and record the number of males.

7. Repeat the above procedure for each additional sample and average the results. If the results of the two samples are very different, a third test may be required.

   Also, record the number of spawned out and juvenile/immature herring.

   Important: Check the scale for accuracy periodically using a known weight.

Appendix Table 5. Instructions for estimating percent roe yield if concise sampling equipment is not available.

The technique was developed by S.W. Yip an employee of Canadian Fishing Company for fish packers to test for roe yield during a fishery when buying herring and is based on the number of mature females in a sample of 50. The technique will not be accurate if spawned out herring represents more than 10% and assumes the sex ratio is 50/50. Keeping these shortcomings in mind the technique can be used by DFO staff to estimate roe yield if more concise sampling equipment is not available.

Procedure:

1. Randomly obtain approximately 45 kg (100 lb) of herring from the set or load.

2. Using the same procedure outlined in Appendix Table I mix the herring by pouring the herring back and forth in several buckets to ensure a random sample.

3. Randomly strip herring and retain in a separate bucket until you have exactly 50 females; make sure an accurate count is made of the number of spawned out herring because the technique will not work if the spawned out herring represents more than 10%.

4. Separate herring with mature roe from herring with immature roe.

5. Count the herring with mature roe and using the attached reference table record the % mature roe (roe yield).

6. Repeat the above procedure for each additional sample and average the results. If the results are much different further tests may be required.

Important to remember, more than 10% spawned out herring and a disparity in the sex ratio can effect the results.

Appendix Table 5 (Cont'd)

Reference Table for Estimating Roe Yield Using the Number of Mature Females

No. of Mature Females in 50 Females	% Mature Females in 50 Females	% Mature Roe in the Sample
30	60	6.5
31	62	6.8
32	64	7.3
33	66	7.5
34	68	7.7
35	70	8.0
36	72	8.3
37	74	8.5
38	76	8.8
39	78	9.2
40	80	9.5
41	82	10.0
42	84	10.5
43	86	11.0
44	88	11.5
45	90	12.0
46	92	12.6
47	94	13.1
48	96	13.6
49	98	14.2

Appendix Table 6. Formula used to adjust roe yields to a 50:50 male/female sex ratio.

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1. Determine the number of males and females in the roe test sample i.e. 42F, 56M.

2. Determine the % of females in the roe test sample i.e. 42.8% females.

3. Determine the % roe yield i.e. 9%.

   To convert the roe yield to a 50:50 male/female ratio, use the following formula:

$$\frac{\%\ \text{roe} \times 50}{\%\ \text{females}} \quad \text{i.e.} \quad \frac{9 \times 50}{42.8} = 10.51\%$$

In this example, the roe yield was actually 10.5% assuming a 50:50 male/female sex ratio for the herring stocks in the area.

This information is not to be passed to the Management Coordinator over the R.T. unless requested; a suggestion is to make reference to the fact males or females are dominant, but do not pass on the adjusted roe yield.

The above formula is for your own interest in what the potential roe yield could be.

WHEEL HOUSE & SAMPLE LOG

(To be completed after every set, including water hauls and charter payment sets)

SET INFORMATION

1. Vessel OCEAN CLOUD 2. Captain BILL BIRD
3. a) Stat Area 26 b) Section _____ c) Water Depth 25 FATHOMS
4. Location 2-13 BURNABY STRAIGHT, OFF RAT ISLAND
5. Date: Day 25 Month 03 Year 90
6. Set No. 36 7. Sample No. 26 8. Time Set 1605 HRS
9. Sample: a) is √ b) is not _____ representative
10. Est. Tons in school set on 300T 11. In catch 150T
12. Est. Tons in location 3,000 - 4,000T
13. Sea Surface Temperature 7.6°C
14. a) Wind Direction & Velocity SE 10 - 15 KN
b) Sky Ø % clear
15. Herring School Behaviour 5 FATHOMS ROPE.
16. Incidence of other species NIL

19. ROE TEST INFORMATION

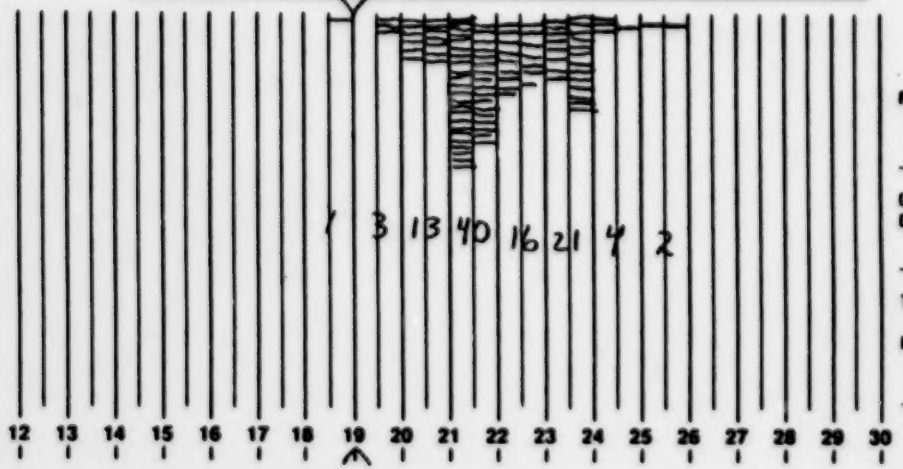
	Test 1	Test 2	Test 3	Test 4	Test 5	Ave
No. Females cond. 1 Roe ... a)	33	45	57	49	49	47
No. Females cond. 2 Roe ... b)	1	2	2	2	4	2
No. Females cond. 3 Roe .... c)	7	1	4	4	10	5
TOTAL FEMALES ..... d)	41	48	63	55	63	54
NO. OF MALES ..... e)	66	55	44	52	48	53
Spawned out ..... f)	Ø	Ø	Ø	Ø	Ø	Ø
Juvenile/Immature ..... g)	Ø	Ø	1	Ø	Ø	Ø
ROE YIELD (VOL) ..... h)	8.5 %	11 %	14 %	14 %	12 %	11.9 %
Roe Yield (WT) ..... i)	%	%	%	%	%	%
Total Sample Weight ..... j)	gm	gm	gm	gm	gm	gm
Total Roe Weight ..... k)	gm	gm	gm	gm	gm	gm

20. Comments RE: Maturity (gonad running or firm) spawning.
A FEW MALES AND FEMALES ARE RUNNING. NO SET MADE. VERY LITTLE AMOUNT OF HERR IN BUCKET.

17. Summary of On Board size Measurements:
a) Measured 100
b) Cutoff length used 190 mm
c) Fish less than cutoff length 1 %
d) Average size 221 MM

18. Tagging Information:
a) Tag Series —
b) Tags Destroyed —
c) Total Tagged —

NOTE: List Tags destroyed below.



IMPORTANT
Complete
This Section

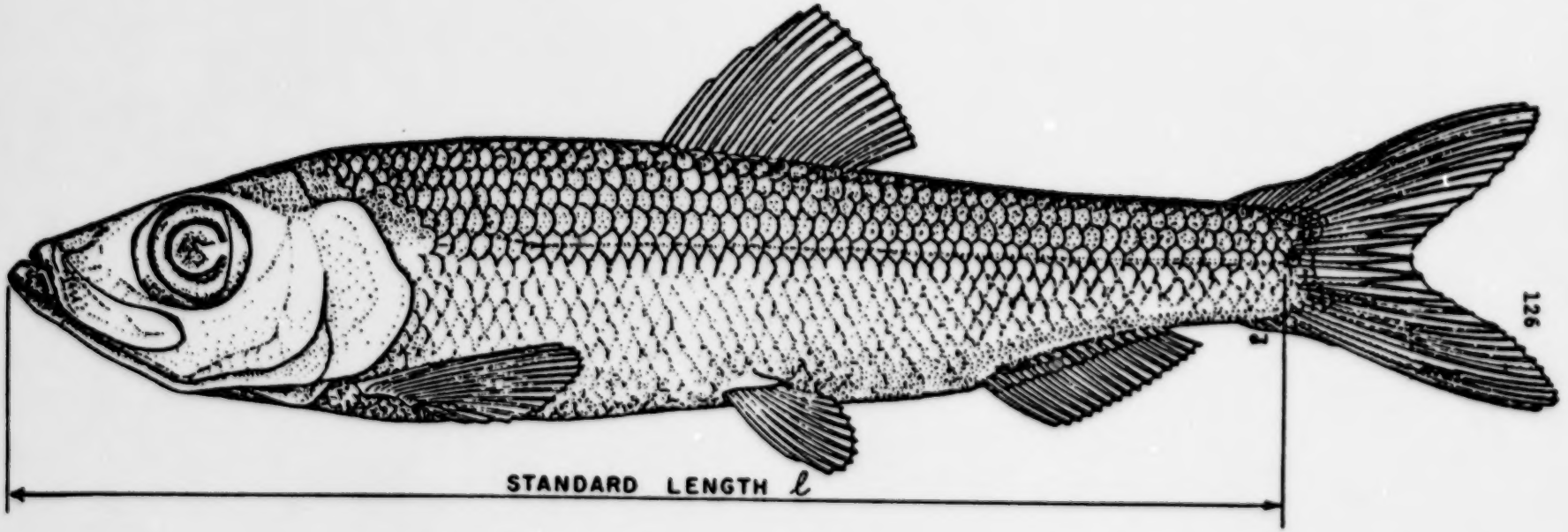
Reporting Officer:
B. SPILSTED

Date Reported:
DAY/MONTH/YEAR
25/03/90

Time: 1805 HRS

Reported to:
V. FRANETTE
(AFFIX LOT)

125



Appendix Fig. 2. The standard length measurement ℓ used for measuring herring. This length is defined as the distance from the anterior tip of the fish with the mouth closed, to the end of the silver skin on the caudal peduncle. It is important to scrape the scales off the peduncle area to find the end of the silvery portion of the skin.